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ABSTRACT

The first edition of this resource guide for educators on how to teach students about Acquired Immune Deficiency Syndrome (AIDS) was published in 1986. Since then, basic facts about the transmission and prevention of the AIDS virus have not changed substantially. The terminologies about the disease, however, have changed and the changing terminologies (AIDS, ARC, HIV infection) are explained in the preface of this third edition. The first section of the book explains why teenagers and young adults need to be taught about AIDS and gives suggestions for using the curriculum. Methods and concepts for teaching high school students about AIDS and human immunodeficiency virus (HIV) are discussed and basic information on AIDS/HIV is provided. Safe and unsafe sexual activities are differentiated and a sample lecture is included. The second section provides seven teaching plans which present different approaches to teaching AIDS in the classroom. Most plans are designed to be taught in a single-session class or expanded to fill two or three sessions. The first of the plans is a basic AIDS unit and the other six are designed to be appropriate for use in different disciplines. Also included is a supplement on how the AIDS virus infects the immune system. The next section contains teaching materials, including six worksheets and an objective test. The final section contains background materials, including supplementary teaching tips, AIDS information sources, and a glossary of terms. (NB)

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AIDS

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A Resource Guide
on Acquired Immune
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teaching AIDS

A Resource Guide on Acquired Immune Deficiency Syndrome

THIRD EDITION

MARCIA QUACKENBUSH AND PAMELA SARGENT

Network Publications, a division of ETR Associates
Santa Cruz, CA 1990

Publisher's Note

This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold with the understanding that the publishers are not engaged in rendering medical, psychological, or other professional services. If expert assistance or counseling is needed, the services of a competent professional should be sought.

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Authors' Note

Every reasonable effort has been made to provide accurate information in this publication. The statements made in the curriculum are consistent with the present state of knowledge about AIDS and HIV. We do not expect substantive changes in most of this material in the near future, but cannot be responsible for inconsistencies that might arise as a result of new developments in research.

Dedication

This work is dedicated to the memory of Jon Herzstam, a long-time advocate for youth and a pioneer in planning AIDS prevention programs for young people.

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Preface

Teaching AIDS was first published in 1986. It was based on a curriculum originally written in 1985 for teachers attending one of the first trainings in the nation on how to teach students about AIDS. You are holding the third edition in your hands now.

There are three points in particular which seem notable as this third edition of the curriculum is offered. The first is that the basic facts about the transmission and prevention of the AIDS virus have not changed substantially since the very first version of the curriculum was written in 1985. The second is that terminologies about this disease *have* changed, and that the language of the older versions seemed to become outdated quickly (see "Changing Terminologies: AIDS, ARC, HIV Infection," p. ii).

The third is that we are now a full decade or more into this epidemic. Serious efforts have been made since the mid-1980's to develop effective tools to help teenagers change risky behaviors or choose healthy behaviors in the first place. At this point, however, we still don't have a clear consensus, or persuasive research, showing us the best direction in this effort (see "Endnote: What's Next in AIDS Education for Teens?" on p. 117). AIDS education continues to be one of the most important endeavors of people working with children and young adults. It can also be a controversial and challenging effort. If good education is your goal, we hope this curriculum, amidst all the challenges, provides support to you in your efforts.

Many individuals and organizations assisted in the effort to complete this curriculum. We wish to thank:

> The San Francisco General Hospital AIDS Research Fund, which supported in part the writing of this curriculum.
>
> The San Francisco AIDS Foundation, which gave us permission to reprint information from two of their informational brochures (the list of common symptoms of AIDS on p. 12, and the explanation of the meaning of antibody test results on p. 18).
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CHANGING TERMINOLOGIES: AIDS, ARC, HIV INFECTION

Let's face it: language is one of those basic elements that we just can't communicate without. So we have to deal with language when we talk about the HIV epidemic.

A problem arises, though, because different people in different roles have different goals from language. Educators working with teenagers need easy-to-understand, concise ways to explain information about AIDS. Scientists need precise, commonly agreed upon words and terms that communicate specific circumstances or technical facts. Right now, I'm not sure either group can be completely satisfied with the state of language about AIDS.

Revising this curriculum, I wanted to keep the language and terms clear and concise, but I also wanted to be precise with the scientific facts. What follows is the best explanation I can offer about the different terms used to refer to AIDS, HIV, ARC, HIV infection, etc., and how I have chosen to use them in this edition of *Teaching AIDS*.

"HIV" is the name of the virus which causes AIDS. "HIV" stands for "human immunodeficiency virus."

"AIDS" is a specific and well-defined manifestation of infection with HIV. It is not, however, the *only* manifestation of infection. That means that if a person becomes infected with the AIDS virus, he or she may show any of several different profiles of the infection. AIDS is one, but there are others as well.

Let's look at some of those profiles.

Most people who become infected with HIV will show no symptoms at all for several years. (Some people will have an acute flu-like illness 2-12 weeks after infection which may last a few days or weeks. But then it's gone and the person usually forgets about it.) In this state, a person has "asymptomatic HIV infection." It is also accurate to say this person is HIV-positive (has tested positive for HIV antibodies) or has HIV infection. For our purposes, we'll call this "Profile 1."

Over time, most people with HIV infection will begin to develop symptoms suggesting that their immune systems have been damaged. Often, this occurs about five years after first becoming infected. We'll call this "Profile 2." Usually, the symptoms are mild to begin with. They will probably become more severe over time. Today, this stage of illness would usually be called "symptomatic HIV infection." At an earlier time it might have been called "ARC"—AIDS-related complex. People have used terms like mild ARC, moderate ARC, or even severe ARC. These terms are gradually falling out of favor because they are not very precise.

It would still be accurate to say that this Profile 2 person has HIV infection or is HIV-positive. This may confuse the issue, however, because some people think of "HIV infection" as the asymptomatic phase only.

There are others who would refer to Profile 2 as "HIV Disease," indicating that the infection has begun to manifest disease processes. They might also make a distinction between HIV infection and HIV disease, thinking of the former as an asymptomatic period and the latter as a symptomatic one.

Profile 3 is the person with AIDS. To be diagnosed with AIDS, an individual must have one or more very specific illnesses, along with indications that he/she is infected with HIV. Most people with an actual diagnosis of AIDS are fairly progressed in their illness. They have probably been infected for many years, and their immune systems are usually significantly damaged.

The exception in Profile 3 is the person with an initial diagnosis of Kaposi's sarcoma (KS), with external lesions only and no other AIDS-associated diseases. This individual *may* have a fairly healthy immune system, and if the lesions do not progress (multiply in number and grow in size), and no other diseases develop, he/she may do very well for years.

So where does this leave us with our language problem? Certainly not with an "easy-to-understand, concise" set of terms to use with teenagers!

Here's what I've done in this edition of *Teaching AIDS*.

I have usually used the term "AIDS" in very broad terms (AIDS education, AIDS organizations), or in very specific terms (referring to a person with an actual diagnosis).

I have used the term "HIV infection" to refer to the full spectrum of manifestations (Profiles 1, 2 and 3). Frequently, I simply use the term "HIV" (as, "a person with HIV"), because the constant use of the word "infection" became tedious.

I have used the phrase "HIV is transmitted" rather than "AIDS is transmitted," because it is the *virus*, not the syndrome, which is actually passed between individuals.

Often I have used "AIDS/HIV," just to try to keep everything covered.

When you are teaching teenagers about AIDS and HIV, I hope you will be able to use your own skills and capabilities to bring order to this confusion. It would be best if teenagers did understand the distinctions between AIDS and HIV since much of the information they hear about the disease will make more sense once this is clear.

Marcia Quackenbush
1990

USING THE CURRICULUM

Why Teach Teenagers and Young Adults About AIDS?

AIDS is a terrible disease. At present, there is no vaccine and no cure, and mortality is very high. The only way to stop the disease now is to *prevent* infection in the first place. As teachers and educators, you have the opportunity to make a significant impact on your students, to inform them about this disease and how it can be prevented, and to persuade them to follow prevention guidelines. Teaching about AIDS is an essential part of our successful battle against the spread of the disease.

AIDS cases continue to increase at a startling rate—there were over 120,000 cases reported at the time this curriculum was revised (March 1990), and public health experts predict there will be more than 270,000 cases by the end of 1991. Each diagnosis of AIDS carries immense costs: the loss of productivity by young members of society, the significant expense of medical care, and the immeasurable costs of human suffering and loss for those diagnosed, their friends and family. What makes this doubly tragic is that this disease can be prevented.

At this point, we know for certain that AIDS is transmitted primarily through certain kinds of sexual contact and the sharing of needles in IV drug use. **Anyone, male or female, gay, bisexual or heterosexual, can contract AIDS.** Because of their sexual behavior and drug-use patterns, teenagers and young adults in the United States are certainly at risk. (AIDS has been transmitted through blood transfusions or blood products in the past, but current tests of donated blood now make the risks of such transmission extremely low.)

ADOLESCENT SEXUAL ACTIVITY

Developmentally, teenagers are in a period of their lives in which they often experiment with identities, interest, and behaviors, including sexual behaviors. The 1986 Harris Survey conducted for The Planned Parenthood Federation of America, Inc. shows that more than half America's teenagers report having sexual intercourse by age 17. According to the 1979 surveys of two Johns Hopkins researchers, Zelnik and Kantner, some 16% of teenage women report sexual contact with four or more different partners. Eighty-five percent of reported sexually transmitted diseases are in persons 15-30 years old. Nearly 1.2 million teenage women become pregnant each year, and at current rates, 40% of women will conceive during their teenage years. Clearly, teenagers and young adults are a sexually active population. These statistics are more startling when we consider that the same activities which caused most of these STDs and all of the pregnancies can also expose individuals to AIDS.

ADOLESCENT DRUG USE

Many teenagers and young adults are also likely to experiment with drugs. While national statistics on teenage IV drug use are not available, conservative estimates suggest over 200,000 high school students have used heroin; about 2 million have used other opiates; about 7 million have used stimulants; and over 3 million have used cocaine. All of these substances may be used intravenously, putting the user at risk for AIDS.

CONCLUSIONS

American teenagers throughout the country, in rural as well as urban settings, are engaging in activities which can put them at risk for AIDS.

We are fortunate that so far not many adolescents have been diagnosed with AIDS. Fewer than 1% of all U.S. cases are among teenagers. However, about 20% of total U.S. cases fall in the 20-29 year old age range. Because of the long incubation periods for AIDS—believed to be over ten years for about half the people who will be diagnosed with AIDS—we know that many of these young adults were first infected with the virus as teenagers.

For the sake of their present and future health, we urge you to inform your students *now* about AIDS. They deserve accurate information about the disease. The materials in this curriculum will help you present that information effectively and thoroughly.

How to Use This Curriculum

1. **Read "Methods" and "Concepts."**
   These sections summarize the most important points to teach young people about AIDS (pp. 5 and 6).

2. **Read the "AIDS/HIV: Basic Information" Section.**
   This section gives a good general background on AIDS and allows you to answer the most commonly asked questions (pp. 7-22).

3. **Review Other Sections of Interest.**
   Depending on your familiarity with AIDS and your experience teaching sensitive subjects, you might want to consider the suggestions in "Trouble-Shooting For Teachers: What Can Go Wrong in Teaching About AIDS/HIV?" (p. 129); "Talking About Sexuality in Classrooms" (p. 131); "Lingering Doubts About Casual Transmission" (p. 123); "Staying Updated on AIDS Information" (p. 139); "How to Teach About Condom Use" (p. 133); and "The Issue of Abstinence" (p. 127).

4. **Look Over the Teaching Plans.**
   One or more of these plans will be appropriate for your students, as presented or with some modification. The plans may also give you ideas on how to integrate information about AIDS into a curriculum you already use. Short descriptions of the plans are given on pp. 29-30, and cover sheets for each plan give more details on the material.

5. **Look Over the Teaching Materials.**
   Five worksheets and an objective test are included in this curriculum. These are optional materials which can further enhance and expand your teaching about AIDS. Descriptions are given on pp. 101-102.

6. **Teach About AIDS In Your Classes.**

Methods for Teaching High School Students About AIDS/HIV

1. **Present material simply.**

2. **Be explicit and specific.** Your discussions will include information about body functions, sexual activities, IV drug use, etc. Young people need to hear very specifically what constitutes a risk activity for HIV, as well as what exactly will protect them from infection with HIV. Teaching will be most effective if students understand how to use condoms and where to acquire them.

3. **If possible, present units on human sexuality before teaching about AIDS.** The absence of such a unit is no reason not to teach about AIDS, but students already exposed to the concepts of activities like anal and oral sex will be better prepared to hear information about AIDS clearly and easily.

4. **If possible, present the basics about communicable diseases before teaching about AIDS.** Again, AIDS can certainly be taught without this information, but the fact that the AIDS virus is *not* casually transmitted makes more sense to a student who is already aware of the fact that different infectious diseases have a variety of styles of transmission.

5. **Follow the guidelines of your school or district concerning parental consent for classes involving frank discussion of sexuality and drug use.**

Concepts for Teaching High School Students About AIDS/HIV

There are four essential concepts all students should understand at the end of a successfully taught unit on AIDS/HIV.

1. **AIDS/HIV is a viral disease, not a gay disease.** It is not caused by a lifestyle, but by an infectious organism.
2. **AIDS/HIV is not easily transmitted.** People will not contract AIDS/HIV in normal day-to-day contact with others.
3. **Under the proper circumstances, anyone can become infected with the AIDS virus.** The AIDS virus is not influenced by a person's age, sex, or sexual orientation. Sharing IV needles or having unsafe sex with an infected person can expose anyone to AIDS/HIV.
4. **You can protect yourself against AIDS/HIV.** By not sharing IV needles (or, preferably, not using IV drugs at all), and having safe sexual contacts (or not having sex), young people can prevent exposure to AIDS/HIV.

AIDS/HIV: Basic Information

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USING THIS SECTION

This section will give you a good general background on AIDS/HIV and allow you to answer the most commonly asked questions. It is not necessary for you to become an expert on AIDS to teach this material effectively. If questions do arise that you are unable to answer, you can refer your students to local AIDS information sources or you can check with such groups yourself (see Worksheet 4: "Finding Answers to Questions About AIDS/HIV," p. 109).

Read the basic facts about AIDS/HIV. Pages 7 through 22 review the information recommended for an introductory lecture on AIDS, and on page 25 you will find a sample lecture.

INFORMATION FOR BASIC LECTURE

DESCRIPTIONS/DEFINITIONS: *What is AIDS? What is HIV?*

AIDS is a disease that breaks down a part of the body's immune system, leaving a person vulnerable to a variety of unusual, life-threatening illnesses. It is caused by a virus. This virus may also infect the brain, causing a variety of neurologic problems.

The letters stand for:

Acquired - Passed from person to person. Not gotten genetically as are height and hair color.
Immune - The body's defense system, providing protection from disease.
Deficiency - Having a lack of.
Syndrome - A group of signs or symptoms which, when they occur together, mean a person has a particular disease or condition.

The virus that causes AIDS is called HIV, *human immunodeficiency virus.*

People infected with HIV will usually carry the infection for many years before they show symptoms of illness or are diagnosed with AIDS.

EPIDEMIOLOGY: *Who gets AIDS/HIV?*

AIDS/HIV is caused by a virus, and *anyone,* under the proper circumstances, can become infected by that virus.

Though gay men are most commonly affected in the United States at present, these trends are changing somewhat. In some other countries virtually all cases of AIDS/HIV are among heterosexuals.

Blood for transfusions is now screened for HIV, and blood products for hemophiliacs are treated so the AIDS virus is killed. There will be very few future infections through blood or blood products.

In 1990, the breakdown for source of infection in U.S. AIDS cases was as follows:

Population	# cases (January 1990)	% total
Gay or bisexual men	72,153	60
IV drug users	25,200	21
IVDU and gay or bisexual men	8,326	7
Hemophilia/coagulation disorder	1,099	1
Heterosexual contact	5,853	5
Blood transfusions	2,923	2
Other	4,036	3

TRANSMISSION: *How do people get AIDS/HIV?*

People do *not* get HIV through day-to-day, casual contact with family, friends, acquaintances, workmates or the population at large -- unless that contact involves unsafe sexual encounters or the sharing of IV drugs with an infected person.

The virus that causes AIDS lives in certain body fluids, especially blood and semen. People become infected with the AIDS virus by having very intimate, very direct contact with the semen, vaginal secretions or blood of someone else who is infected. The known courses of transmission include:

1. Sexual intercourse (vaginal, anal and oral intercourse).

2. Shared use of needles or other paraphenalia for IV drug use. We are also concerned about the possibility of other needle use transmitting HIV—e.g., non- professional tattooing or ear piercing among friends.

3. Infected mothers passing the virus on to a fetus.

4. Transfusion of blood or blood products infected with the AIDS virus (blood donations are now screened for the AIDS virus, and transfusion-related AIDS will be quite rare in the future).

Finally, a small number of health care workers who have had unusual or very direct exposure to patient blood have become infected. For example, a lab technician, because of an equipment malfunction, was splashed in the eye with copious quantities of AIDS infected blood. She has subsequently become infected herself. In a few other cases, health care workers have accidentally stuck themselves with hypodermic needles that had been used on a person with HIV, and have become infected. Instances such as these, while rare and unusual, remind health professionals to follow infection control guidelines carefully.

I've heard that people do not get HIV through oral sex.

There has been some controversy about transmission of the AIDS virus through oral sex. While it seems true that oral intercourse is not the most efficient means of transmitting the AIDS virus, a small number of people have become infected and report engaging only in oral (not vaginal or anal) intercourse. The Centers for Disease Control (CDC) is convinced by its data that oral intercourse *is* a means of transmission. The San Francisco Department of Public Health, which has explored this question carefully, also reports confirmed cases of HIV transmission through oral intercourse.

While the risk of transmission via oral sex may be lower than through vaginal or anal intercourse, the disease under consideration is severe. In the guidelines presented in this curriculum, we consider oral intercourse "definitely unsafe."

What about other "body fluids"?

The AIDS virus has been found in blood, semen, urine, vaginal secretions, spinal fluid, tears, saliva and breast milk. Of these, *only semen, vaginal secretions and blood are implicated in transmission.* There are also a few cases in which babies have probably contracted HIV through infected breast milk.

HIV has also been found in some internal fluids, including cerebrospinal fluid, synovial fluid (around joints), and pericardial fluid (around the heart). Health care workers and emergency workers might have contact with such fluids. They are advised to follow infection control guidelines in such circumstances.

People are naturally concerned about some of the other fluids—contact with tears or saliva is much more common in day-to-day life. Evidently, these other fluids do not carry a strong enough concentration of the virus to cause infection, even in the unlikely event one's blood system were to come into direct contact with them. In all reported U.S. cases so far, there is not a single case of transmission of the AIDS virus by saliva. Occasional news reports of such transmission, in the U.S. and elsewhere, have all failed to be substantiated.

So far, the AIDS virus has not been detected in sweat. Even if it is found here at a future time, sweat, like tears or saliva, is not implicated in transmission.

The Centers for Disease Control, in their guidelines, state that special precautions are not necessary with other fluids (urine, feces, vomitus, sputum, etc.) unless visible blood is present.

If you have further questions about casual transmission (via day-to-day contact), see "Lingering Doubts About Casual Transmission" (p. 123).

SYMPTOMS: *What is it like to have AIDS?*

One of the striking qualities of this disease is the tremendous variation in how it affects different people. There are people who have been living with an AIDS diagnosis for over six years and who are still working, energetic and productive; others may die within a few days or weeks of diagnosis. Some people are fatigued or very sick throughout the course of the disease. For others, periods of health alternate with periods of illness. There are people with AIDS who are severely disabled and there are those who are in excellent physical condition. A group of San Francisco people with AIDS runs the 7-1/2 mile Bay to Breakers race every year!

At the onset of illness, most people report several of the following symptoms:

Unexplained, persistent fatigue.
Unexplained fever, shaking chills, or drenching night sweats lasting longer than several weeks.
Unexplained weight loss greater than 10 pounds.
Swollen glands (enlarged lymph nodes, usually in the neck, armpits or groin), which are otherwise unexplained and last more than two months.
Pink to purple flat or raised blotches or bumps occurring on or under the skin, inside the mouth, nose, eyelids or rectum. Initially, they may resemble bruises but do not disappear. They are usually harder than the skin around them.
Persistent white spots or unusual blemishes in the mouth.
Persistent diarrhea.
Persistent dry cough that has lasted too long to be caused by a common respiratory infection, especially if accompanied by shortness of breath.

At first glance, some of these symptoms seem much like common signs of cold, flu, etc. The key is that they are severe in nature and last over a significant period—several weeks or more—during which time usual colds or flus would have resolved. Even if symptoms are severe and long-lasting, many of these problems may actually be caused by a variety of other illnesses. AIDS CANNOT BE SELF-DIAGNOSED. Anyone concerned with symptoms should see a physician familiar with AIDS.

DESCRIPTIONS/DEFINITIONS: *What is "HIV Infection"? What is "AIDS-Related Complex (ARC)"?*

The virus that causes AIDS, like many other viruses, has different effects on different people. Some people infected with the virus do not appear ill. They are asymptomatic carriers. Some may develop mild to moderate illness, while others become quite ill.

When the Centers for Disease Control (CDC) defined this viral disease, they described the most common symptoms of the disease in its most serious state. Their definition says a person has AIDS if he or she is known or presumed to be infected with HIV, and also has one of the following: (1) Kaposi's sarcoma, (2) *Pneumocystis carinii* pneumonia, (3) other opportunistic infections, (4) severe weight loss, or (5) specific neurological problems caused by HIV infection.

People who have milder symptoms of HIV infection, or very unusual severe symptoms, do not fit this diagnosis. Earlier on in the epidemic, this condition was often referred to as AIDS-related complex, or ARC. In general, educators, physicians and researchers are avoiding the term "ARC" now because it is imprecise. More commonly, people refer in general to "HIV infection" or "HIV disease." A person with HIV infection (1) may have no symptoms of illness ("asymptomatic HIV infection"); (2) may have symptoms, but not meet the CDC criteria for an AIDS diagnosis ("symptomatic HIV infection"); or (3) may meet these criteria and carry a full diagnosis of AIDS.

For a complete description of the CDC diagnostic criteria and the classifications of HIV infection, see pages 149-153.

INCUBATION: *How long is the incubation period for AIDS?*

Most people infected with HIV will show no symptoms of infection for five or more years. After *ten* years, only about half of the people infected will actually have gone on to a full diagnosis of AIDS.

This is important because it means someone infected with HIV may have no indication for many years that he or she carries the AIDS virus. During that time, the person might engage in risky activities with others, without knowing HIV could be passed on.

A test is available that can detect HIV infection long before symptoms occur (see "HIV Antibody Testing," p.18).

PREVENTING AIDS/HIV: *What are the basic guidelines for AIDS prevention?*

1. Abstain from sex; or, if you are going to engage in sexual activity, do not allow semen, vaginal secretions or blood of an infected person to enter your body. Use condoms for all types of intercourse (vaginal, anal or oral).

2. If you do not know whether or not a sexual partner is infected with HIV, follow safer sex guidelines. Remember, you cannot tell by looking at someone whether he or she has been infected.

3. Do not share hypodermic needles or any other needles under *any* circumstances with anyone. (It is also best not to share razors or toothbrushes with an infected person because they may expose you to minute amounts of blood.)

OTHER COMMON QUESTIONS

NATURAL HISTORY OF HIV: ***Does everyone infected with the AIDS virus die?***

At this point, most of the people in the U.S. infected with the AIDS virus are not ill. However, in studies of people who have been infected for some time, rates of illness are quite high. In one well-known San Francisco study, a group of men who are known to have been infected since 1978 or 1979 has been followed carefully. After seven years, about 75% of these men had physical symptoms, mild or severe, of HIV infection. After ten years, about half had an actual AIDS diagnosis.

These findings are startling. If they hold true in other groups, it means that most people infected will become ill. And, while it is true that some people are only mildly ill or have episodes of illness alternating with periods of health, AIDS-related infections overall appear to be progressive in nature—that is, over time the state of health deteriorates. There is a very small number of individuals who may have recovered some of their immune functioning (their immune systems have become stronger), but most people have not done so once they become ill.

The answer to this question, then, is that we do not know if everyone infected with the AIDS virus will die. We certainly hope this is not the case. Out of respect for the thousands of people living with this disease today, it seems inappropriate to make any sort of blanket statements to this effect without better evidence than we currently have.

TREATMENTS: ***Are there any treatments or cures for HIV infection?***

Science seems a long way off from an actual cure for HIV infection, but some exciting developments in treatment of the disease have occurred.

For example, research currently indicates that the use of the drug AZT (Retrovir) helps prolong the lives and periods of good health of people in certain stages of HIV infection.

Prophylactic (preventive) treatments for some of the diseases associated with HIV are also being developed. Such treatments can help prolong periods of health for people with HIV infection.

As exciting as these developments are, *prevention* of infection continues to be the only certain method of beating HIV.

ADDITIONAL SAFETY: ***Are there additional ways to increase one's protection from the AIDS virus in sexual intercourse?***

Spermicidal lubricants are available and can be used with condoms. Nonoxynol-9 is a substance in some of these spermicides that has been shown to kill the AIDS virus in the lab. People can use a nonoxynol-9 spermicide along with a condom in vaginal and anal intercourse as "extra" insurance, in case the condom breaks. Nonoxynol-9 is *not* considered an effective preventative without a condom.

Some people may develop a rash from nonoxynol-9, and broken skin could actually increase one's chances of becoming infected with HIV. People should not use nonoxynol–9 lubricants if any rash or irritation develops.

Finally, any lubricant used with condoms must be *water based,* containing no fats or oils. Check labels carefully—fats and oils break down latex and cause condoms to break.

PROBLEMS WITH PREVENTION: *What keeps people from following AIDS prevention guidelines?*

There are assorted reasons people do not follow these guidelines. They may not know about AIDS prevention. They may not consider themselves at risk. Or they may know they have a risk but believe "it could never happen to me."

Condoms are an important element of safer sex practices, and many people are embarrassed or uninformed about the purchase or use of condoms. As we redefine our concepts of sexuality and increase our comfort with safer sex, it may be easier for people to use condoms.

IV drug users have traditionally had a difficult time changing behaviors. If sharing needles is the only way to get a drug to which you are addicted, it is very difficult to decide not to share. Drug users need AIDS prevention information, and we must redouble our efforts to prevent IV drug addiction and abuse in the first place.

HISTORY OF AIDS: *Why are people concerned about AIDS now? Why didn't we hear about it 20 years ago?*

AIDS was not recognized or described as a disease until 1981. Tracking of AIDS only began when doctors had seen enough of it to recognize that they were faced with a serious, previously unknown disease. In 1981, 316 people in the United States had AIDS. By August 1986, over 23,000 cases were reported here. And by January, 1990, there were 120,000 U.S. cases, and over 200,000 worldwide. This alarming growth in the rate of the disease has led to great concern about AIDS.

ORIGIN OF THE VIRUS: *Where did AIDS come from?*

The exact origins of AIDS are not known. Either it is a new human disease which developed recently, or it is a disease that was until recently isolated in a particular geographic group of people.

The prevailing scientific opinion now is that the virus originated in Africa. Several different kinds of monkeys in Africa are known to carry a virus quite similar in structure to the human AIDS virus. The best scientific guess is that at some point in time, as a natural part of the process of all living organisms, there was a chance mutation of one of the simian (monkey) viruses which made it possible for the virus to cross the species barrier from monkey to human. While mutations at the cellular level are fairly common, this particular type of mutation would be very unusual.

In certain areas of Africa, monkeys are kept as pets or are considered a food delicacy. Possibly through ingesting some uncooked organs, or through an accidental cut while preparing a carcass, the first human was infected. The disease may have begun in this simple, quiet manner, spreading to others from this point through sexual intercourse and shared needle use.

We want to note that many African government representatives are sensitive about this view, understandably since it is often set forth in a manner that seems to blame Africa for the appearance of the virus. While scientific events are not themselves racist, observations and reporting of them may be so. It is important to remember that no one person, nation or population is responsible for the development of AIDS, and we must all share the responsibility for stopping the spread of the virus.

IMMUNOLOGY: *What happens to the immune system when someone is infected with the AIDS virus?*

The immune system is complex. In studying AIDS, medical researchers are beginning to understand more about it.

Basically, the body of a person infected with the AIDS virus may lose the ability to fight off certain infections that people with healthy immune systems can combat successfully. For instance, *Pneumocystis carinii* pneumonia (PCP), a common and serious infection in persons with AIDS, is caused by a one-celled organism that is all around us. Most of us have already been exposed to this organism many times throughout our lives. The body's immune system recognizes it and eliminates it without our ever becoming ill. For people with AIDS, the immune system may recognize the parasite, but the immune response is damaged so the body is unable to fight the infection, and the person becomes ill. The kinds of diseases that infect a person with this kind of immune problem are called "opportunistic infections." (For a more in-depth explanation of how AIDS infects the immune system, see Plan 6: "HIV—The AIDS Virus" [p. 75]. For a simple explanation appropriate for classes, with diagrams, see Supplement: "How the AIDS Virus Infects the Immune System" [p. 97].)

RANGE OF INFECTIONS: *What are the illnesses that affect people with AIDS/HIV?*

The manifestations of HIV can vary widely from person to person. The range of infections seen in HIV infection is quite broad, with people being affected by fungal, bacterial, protozoal and viral diseases as well as some cancers. The two most common AIDS diseases are Kaposi's sarcoma and *Pneumocystis carinii* pneumonia. Kaposi's sarcoma (KS) is a disease of the cells that line certain small blood vessels. People with KS develop purple lesions, which may appear on the skin where they can be seen or internally where they cannot be seen. In time, the number of lesions will usually increase and they may grow in size. As the disease progresses, complications may develop because of the number and size of lesions.

Pneumocystis carinii pneumonia (PCP) is the most common opportunistic infection seen in people with AIDS. It was originally thought to be caused by a protozoan, though evidence now suggests it is probably fungal in origin. People with PCP usually become quite ill at the time of diagnosis, with fatigue, weight loss, fevers, dry cough and difficulty breathing. Often PCP requires hospitalization. This disease can be treated. As with other AIDS-related diseases, successful treatment of PCP does not cure the underlying immune problems. In time a person may again be affected by PCP or other opportunistic infections.

Other infections seen in AIDS include toxoplasmosis and cryptosporidium, also caused by protozoans; candida and cryptococcus, caused by fungi; cytomegalovirus (CMV) and herpes, caused by viruses (herpes infections in people with AIDS are *quite* severe and atypical; the usual genital or oral herpes infections are *not* indicative of AIDS); and a bacterial disease called mycobacterium avium intracellularis. (For a more in-depth description of AIDS-related diseases, see Plan 6: "HIV—The AIDS Virus" [p. 75].)

VIROLOGY: *What else can you tell me about the AIDS virus?*

The AIDS virus belongs to a special class of viruses called retroviruses. Retroviruses replicate (reproduce) in a manner different from other viruses. But to replicate, all viruses and retroviruses must first infect a living cell, and then take over the cell's own reproductive mechanism, using it to produce more *virus* rather than new cells.

The AIDS virus infects cells of the human immune system. It destroys the cells' disease fighting capabilities, making the body susceptible to unusual and severe diseases.

The AIDS virus has been given a variety of names by different researchers, including HTLV-3, LAV, and ARV. In 1986, an international panel suggested it be called HIV—"Human Immunodeficiency Virus." This is the name used commonly now.

The AIDS virus is also a fragile virus, which does not live long or well outside the human body. It is easily killed with a solution of bleach and water. A 1:10 solution (one part bleach to nine parts water) is usually recommended, though the virus is also killed by solutions as dilute as 1:100. It can be washed from hands or skin with regular soaps and water.

There have been reports of AIDS virus surviving outside the body for periods of several days. In these studies, massive concentrations of virus were used. The actual concentration of the virus in blood or semen is *many* magnitudes less, so in any natural biological state the virus will *not* survive outside the human body for more than a few hours at most.

VACCINE: ***When will there be a vaccine for AIDS?***

To date, a successful vaccine has never been developed for a human retrovirus, which makes finding an AIDS vaccine one of the greatest challenges for medical science so far. There is still no guarantee that a vaccine for AIDS can be produced, but recent developments are promising. Guesses for when a vaccine will appear run anywhere from two to ten years, and some experts believe it will never happen.

Once and if a vaccine is developed, it will need to be tested carefully for several years before it is used widely. The only course for preventing AIDS at present is to practice the AIDS prevention guidelines (p. 13).

HIV ANTIBODY TESTING: ***What is the HIV antibody test? What is the "AIDS test"?***

The HIV antibody test is a test that was developed to make certain blood donated for transfusions did not carry the AIDS virus. There are actually several different tests currently being used to check for HIV antibodies, each using a different method. The most common type is an ELISA ("ELISA" refers to the method of assay used). The ELISA tells, fairly simply and quite inexpensively, whether a blood specimen has been infected with the AIDS virus. It is a practical way to screen blood donations and, because it is now universally applied in U.S. blood banks, it has made the blood supply very safe. We will probably see very few future cases of AIDS passed through transfusions (though people transfused before 1985 may still be at risk because of the incubation period of the disease; see p. 13 for more information). The test is usually used to test semen donors for insemination, and it is recommended for organ donors to protect recipients of organ transplants.

Some individuals have taken the antibody test to determine whether or not they have been infected with the AIDS virus. If the antibody is *absent*, the test is *negative* and it means *one* of the following is true:

1. The person has not been infected with HIV.

OR

2. The person has had contact with the AIDS virus but has not become infected and therefore has not produced antibodies. However, repeated exposure to the AIDS virus would increase the likelihood that the person will become infected.

OR

3. The person has been infected by the virus but has not yet produced antibodies. Research indicates most people will produce antibodies within 2-12 weeks after infection. Some people will not produce antibodies for as long as six months or more. A very small number of people may take even longer to produce antibodies.

If the test shows that the antibody is *present*, the test is *positive*, and it means *all* of the following are true:

1. The person's blood sample has been tested and the test indicates antibodies to HIV are present.

AND

2. The person has been infected with HIV and antibodies have been produced.

AND

3. Researchers have shown that most people with HIV antibodies have active virus in their bodies. Therefore, a person with a positive test must assume he or she is capable of passing the virus on to others under the correct circumstances for transmission (see "Transmission," p.10).

The test is quite accurate, but like other medical tests there will be some false negatives (a person *does* have antibody, but tests negative) and false positives (a person *does not* have antibody but tests positive).

The ELISA test was developed to screen blood donations. The blood banks naturally wanted to be very careful to pull out any blood infected with the AIDS virus, so this test is more likely to err on the side of false positives (that is, it would be better to pull out non-infected blood, losing a few units of blood that were actually safe), than false negatives (allowing blood that *was* infected to be used for transfusions). To correct for this error of the test, responsible labs will usually screen blood first with the ELISA, because it is the easiest and most inexpensive test available. If the sample tests positive, they will test it two more times with the ELISA and, if both of these tests are positive, the sample will be checked again with one of the other types of tests. When these procedures are followed, results are accurate well over 99.9% of the time.

Unfortunately, some labs, especially some private-for-profit operations, have not been as careful as this. They will report results based on a single ELISA screening. Under these circumstances, the error rate is much higher. People wanting to take the test might want to ask about lab procedures before they do so.

Many people misunderstand the antibody test and believe it is a "test for AIDS." It will not tell whether a person has AIDS, but only whether he or she has HIV infection.

If a person wants to take the AIDS antibody test, we recommend having the test performed where anonymity is guaranteed if possible. Anonymous testing means your name and test results are not recorded together anywhere, nor is there any record of your taking the test. A mention of the test in medical records, even if the results are negative, might complicate future efforts to acquire health insurance. In some states a positive result could lead to legal problems.

It is also essential that anyone testing HIV-positive get medical advice from a knowledgeable physician. There are now treatments available for people at certain stages of infection that help keep them healthy and prevent some HIV-associated diseases.

HETEROSEXUAL TRANSMISSION: *What is the risk of heterosexuals' contracting HIV?*

Anyone can contract HIV if he or she is exposed to the virus through unsafe sex or the sharing of IV needles.

Most experts do not consider it likely that HIV will spread as rapidly among heterosexuals as it has with gay men because heterosexuals generally have fewer sexual partners. A small number of well-informed researchers, however, feel heterosexuals should be more alerted to AIDS risks than they have been. HIV can be spread by vaginal intercourse, and there are cases of male-to-female and female-to-male transmission. Those at highest risk are people with multiple sexual partners in areas where the disease is already widespread. In some countries, virtually all of those infected with HIV are heterosexuals.

For most U.S. heterosexuals, the risk of contracting HIV today is small. The judicious use of safer sex practices (along with not sharing IV needles) can keep the risk small in the future.

LESBIAN TRANSMISSION: *Can lesbians get AIDS?*

A few cases have now been reported of sexual transmission of the AIDS virus between lesbians. We recommend that lesbians consider partners' sexual histories and any past IV drug use. If there is a possibility of risk, they should practice safer sex. Like everyone else, lesbians are also susceptible to HIV infection through IV drug use or unsafe sexual contact with infected men.

PREGNANCY: *How are people to plan pregnancies if the AIDS virus can be transmitted by semen?*

If two people wish to consider pregnancy and they know confidently that neither has a past risk of exposure to HIV, they can simply proceed with their plans.

In assessing risk, one must consider (1) history of IV drug use; (2) personal sexual history; (3) the sexual and drug use histories of any past sexual partners; and (4) any history of blood or blood product transfusion. It is difficult to know confidently about the history of past partners, and one would want to consider one's experience since 1978.

If there is some doubt about the possibility of exposure to HIV, couples might consider taking the HIV antibody test (explained on p. 18). If one or both partners have been exposed to the AIDS virus, we recommend postponing pregnancy until we have a way to prevent transmission of the virus to partners or a fetus. Donors providing semen for insemination should be tested for HIV antibodies.

INSECT BITES: ***Can people get AIDS from insect bites?***

A good amount of study has been focused on this subject, and most of the scientific community is well-convinced that this is not a mode of transmission.

A careful look at epidemiology makes this clearer. Malaria is a widespread disease in Africa that *is* spread by mosquitoes. The insects first ingest the parasite which causes malaria by feeding on an infected person, then transmit the parasite through their saliva to another person several days later. People of all ages are infected, including children and elders who may not be sexually active. HIV, on the other hand, is a virus spread by shared needle use and intimate sexual contact, and the people in both Africa and the U.S. who are infected or diagnosed with AIDS fall into very specific categories of risk. They do not represent the more general population of individuals bitten by mosquitoes.

A community in Florida, Belle Glade, had a very high incidence of AIDS. Many of the residents are farm workers, who might receive hundreds of mosquito bites in a day. Studies there specifically sought to determine whether mosquitoes were implicated in transmission of HIV. The studies showed that residents of Belle Glade infected with HIV or diagnosed with AIDS had the same kinds of risks other people have had—sharing needles in IV drug use, or sexual contact with persons at risk (primarily heterosexual contact in these cases). Those with high incidences of mosquito bites without other risk factors did *not* become infected.

SCHOOLS: ***What is the likelihood of a middle or high school student with the AIDS virus passing it on to other students (or teachers) in my school?***

Remember the means of HIV transmission: a person must have very intimate, very direct contact with the semen, vaginal secretions or blood of an infected person. A student is *very* unlikely to have interactions on a school campus that would allow this transmission to occur. Unless the student is having sex with others, or sharing IV needles, there just is not much chance of HIV being transmitted.

People with AIDS or HIV need to be supported in living the most productive lives possible. School is the productive work of teenagers. Students with AIDS/HIV would do best being enrolled in normal classes unless their illness was too severe to allow them to participate.

We note also that guidelines issued by the Centers for Disease Control as well as The American Academy of Pediatrics recommend that students with AIDS/HIV continue attending regular school classes.

CASUAL TRANSMISSION: *I'm not convinced that HIV can't be transmitted casually. There's too much we don't know about the disease.*

For a fuller discussion of this issue, see "Lingering Doubts About Casual Transmission," p. 123.

Safe and Unsafe Sexual Activities

Definitely safe:
(no exchange of semen, vaginal secretions or blood)

- Touching, hugging, massage
- Masturbation, alone or with a partner
- Rubbing bodies together
- Talking about sex, verbal fantasies
- Social kissing (dry)
- Kissing or licking the body (clean skin; no oral contact with genitals or any open sores)

Probably safe:
(most likely there would be no exchange of semen, vaginal secretions or blood)

- Vaginal intercourse with a condom (as long as the condom is used properly and does not break)
- Oral intercourse with a condom or latex barrier over the genitals (proper use, no breakage)
- Anal intercourse with a condom (proper use, no breakage)
- French kissing (wet) (unless the kiss is very hard and draws blood, or either partner has open sores or infection in or around mouth)

Definitely unsafe:
(almost certain dangerous exchange of semen, vaginal secretions or blood, urine or feces)

- Vaginal intercourse without a condom
- Oral intercourse without a condom or latex barrier
- Anal intercourse without a condom
- Sharing objects inserted into anus or vagina
- Any activity that allows blood-to-blood contact

Sample Lecture
Basic Information About AIDS/HIV

AIDS stands for Acquired Immune Deficiency Syndrome. It's a disease that breaks down a part of the body's immune system so the person with AIDS can get a variety of unusual, life-threatening illnesses that healthy people don't get. It's a very serious disease.

You may have heard that AIDS is a disease gay men get. That's true, but other people get it as well. Women and children, babies, IV drug users, heterosexuals, even some teenagers have gotten AIDS. In the United States today, most of the people with AIDS *are* gay or bisexual men. An increasing number of heterosexuals are being affected too. In some countries, almost all cases of AIDS are among heterosexuals.

AIDS is caused by a virus. That virus is called HIV, human immunodeficiency virus. *Anyone* infected with HIV can become ill, regardless of age, sex, race, sexual orientation, or anything else.

The AIDS virus, just like many other viruses, can cause a wide range of symptoms. There are basically three ways people might show infection with HIV:

1. Many people infected with the virus look and feel perfectly healthy. Such people can pass the virus on to others. They are called "asymptomatic carriers," that is, carriers without symptoms of the disease.

2. Other people develop symptoms related to AIDS, but do not have one of the diseases that medical researchers use to diagnose AIDS. These people are said to have "symptomatic HIV infection." They can be fairly healthy or quite sick. Some people call this condition ARC, AIDS-related complex.

3. Finally, some people infected with the virus develop full-blown AIDS. This is usually the most serious form of the disease. Over half the people diagnosed with AIDS so far have died, and most survive less than two years.

Because many people are healthy carriers of the AIDS virus and do not know they are infectious, it has been hard to stop the spread of the disease. The AIDS virus also has a long incubation period—it can take quite a while between the time a person is first infected and the time he or she actually gets sick. With AIDS, this might take anywhere from several weeks to ten years or more.

Fortunately, AIDS is a *difficult* disease to get. Let me tell you some of the things you can do that will *not* expose you to the AIDS virus. You *cannot* get AIDS by touching or hugging someone, sharing food or drinks, riding buses. You *cannot* get it from toilet seats or sinks or swimming pools or hot tubs. You *cannot* get it from drinking fountains. You *cannot* get it by sharing telephones, paper or pencils. You *cannot* get it from someone coughing or sneezing on you. You *cannot* get it from donating blood. You *cannot* get it from insect bites.

People get the AIDS virus by having very intimate, very direct contact with the semen, vaginal secretions or blood of someone else infected with the virus. Here are some ways that might happen:

1. The AIDS virus can be passed between sexual partners engaging in either vaginal, anal, or oral intercourse.

2. The AIDS virus can enter the blood stream directly when IV drug users share needles or other equipment. HIV may be transmitted by people sharing needles for tattooing or ear-piercing without sterilizing them properly.

3. In the past, some people have gotten the AIDS virus from blood transfusions, or from special blood products for people with diseases like hemophilia. Now, blood donations are screened and tested, so the blood supply is quite safe. The medicines for people with hemophilia are pasteurized (heat-treated) to destroy the virus.

4. Women infected with the AIDS virus can pass the virus to newborn children. The children are infected before birth, when they share the mother's blood system.

These are the ways we know that the AIDS virus is transmitted. We know it is not spread by casual contact. Even transmission by saliva (kissing, for example), sweat or tears, doesn't happen. In all the cases reported in the United States (more than 120,000 so far), we have never seen such transmission. You might occasionally read about cases where this is claimed to have happened, but on closer investigation, none of these claims has been true.

Since you can see now that AIDS is not easy to get, and since you know the ways people *can* get it, what can people do to make sure they don't get it?

Two simple rules:

1. Think carefully about whether you want to have sex with someone else. Abstinence is 100% effective in preventing the sexual transmission of the AIDS virus.

   If you *do* decide to have sex, don't take any body fluids directly into your body during any kind of sexual intercourse. Use condoms (rubbers)—they are able to stop the AIDS virus when used correctly.

2. Don't share needles for IV drugs, tattoos, or any other reason *ever*.

Remember that you cannot tell just by looking at someone whether he or she has been exposed to the virus. Some people infected with HIV look and feel very healthy. Your best bet is to follow these two prevention guidelines all the time.

TEACHING PLANS

Introduction to Teaching Plans

These seven teaching plans present different approaches to teaching AIDS in the classroom. Each plan covers the important basic information about AIDS/HIV: (1) it is not casually transmitted; (2) under certain circumstances *anyone* can be infected, regardless of sexual orientation or gender; and (3) AIDS can be prevented. Most plans are designed so they can be taught in a single-session class or expanded to fill two or three sessions. It is our belief that AIDS is an important and complex enough issue that it deserves two or three sessions, but we acknowledge that not all teachers have the luxury of setting aside this amount of time for a new curriculum topic.

1. **AIDS—The Basic Unit**

   This unit is especially useful for broad-scale teaching of AIDS, throughout an entire school or district, for instance.

2. **Public Response to AIDS/HIV**
   (Social Studies, Psychology, Current Events)

   This unit examines the range of responses to the AIDS epidemic.

3. **Civil Rights Issues Involving AIDS and HIV Infection**
   (Civics, Social Studies, History, Ethics)

   This unit examines the important relationships between civil liberties and public welfare, using AIDS as a current and relevant example.

4. **Epidemics and AIDS/HIV**
   (History, Social Studies, Science)

   This unit presents basic AIDS information in the context of other epidemics through history.

5. **STDs and AIDS/HIV**
   (Family Life Education, Sex Education, Health Education)

   These materials can be integrated into any already-existing unit on STDs, such as might be offered in a family life, sex education or health education class.

6. **HIV—The AIDS Virus**
(Biology, Physiology, Immunology, General Science)

This unit presents basic information about the AIDS virus: how it replicates, how it affects the immune system, and what some of the diseases are that strike people with HIV infection.

7. **Pursuing a Medical Mystery: The Story of HIV Disease**
(Biology, Physiology, General Science)

The practice of epidemiology is described using AIDS as a current and relevant example.

Supplement: How the AIDS Virus Infects the Immune System

A simple explanation of how AIDS infects the immune system, with accompanying diagrams.

Plan 1: AIDS—The Basic Unit

Target:

General classes. Broad-scale teaching.

Purpose:

To communicate risk information for AIDS, risk-reduction guidelines, and clarify that the AIDS virus is not spread by casual contact.

Objectives:

1. Students will know basic information about AIDS/HIV transmission.
2. Students will know risk-reduction guidelines for AIDS/HIV.

Format:

1. Lecture/discussion.
2. Written exercises.
3. Objective exam.

Materials:

1. Lecture aids (Diagrams 1-A through 1-E).
2. Any of the worksheets can be used in this unit. Worksheet 1 and Worksheet 4 are especially recommended.
3. Test.

Time:

50 minutes (one full class period).
Optional written exercises (Worksheets 2-6) offer further opportunity for follow-up at a later class session if desired.

Utilization:

Following the outlines, present the class with a series of questions, lecture and discussions to present basic information about AIDS/HIV and impress upon students the relevance of this information.

NOTE: "AIDS—The Basic Unit" presents only the most essential information teenagers and young adults need to have about AIDS/HIV. We believe AIDS is a very complex and important issue that deserves in-depth attention. We encourage and recommend, therefore, that this basic unit be expanded upon whenever possible, using portions of other plans in this curriculum, worksheets, or other appropriate materials.

PLAN 1: AIDS—THE BASIC UNIT

Method: Follow the outlines below. There are questions and lecture material included. Vignettes ("Samuel and Shari" and "Toshi's Story") provide discussion opportunities.

NOTE: It is fairly common, after hearing about safer sex practices, that students will have questions about planning pregnancies. This information is reviewed in "AIDS/HIV: Basic Information," pages 7-22.

SECTION I: INTRODUCTION

A. Tell students you will be discussing the disease AIDS in class today.

B. (Optional) Have students spend a few minutes filling out Worksheet 1: "Personal Opinions About AIDS." Remind them there are no right or wrong answers.

SECTION II: ASSESSING STUDENTS' KNOWLEDGE ABOUT AIDS

A. What do you already know about AIDS? What kinds of rumors or jokes do you hear in school or from your friends?

(This question provides a baseline for understanding students' knowledge about AIDS/HIV and what areas will need focus in the class. For example, students reporting rumors that AIDS can be caught by sitting next to someone on a bus show a common misconception about casual contagion that can be addressed with education on HIV transmission.)

B. What have you heard about how AIDS is spread? You can mention facts, myths, or things you are not sure about.

(You could write some of these answers on the board.)

SECTION III: BASIC INFORMATION ABOUT AIDS/HIV

A. Present the sample lecture, page 25, or your own lecture, including the following:

What is AIDS? What is HIV?
Who gets AIDS/HIV?
How do people get AIDS/HIV?
What is it like to have AIDS?
What is *HIV infection*? What is *AIDS-related complex* (ARC)?
How long is the incubation period for AIDS?
What are the basic guidelines for AIDS prevention?
(List of safe and unsafe sexual activities—p. 23)

SECTION IV: MAKING THE INFORMATION RELEVANT

A. What has all this got to do with you and me? Is there any way you can see your life being influenced by the AIDS epidemic?

B. Vignette: Samuel and Shari

(Diagrams 1-A through 1-E, p. 38 through p. 40, can be used as teaching aids for this vignette.)

A young man named Samuel goes to a party one night, and his buddies urge him to shoot some IV drugs. He has never used drugs before, but decides he will try it just once. His friends show him what to do. Samuel doesn't know it, but one of the other people he is "shooting" with has been infected with the AIDS virus. Samuel becomes infected too. (Diagram 1-A.)

Samuel's girlfriend Shari has sexual intercourse with Samuel without using a condom. She becomes infected too (Diagram 1-B), though neither of them knows this.

Several months later, Samuel and Shari break up. Samuel becomes sexually involved with Marjorie, and he continues to use IV drugs on occasion. Shari starts going steady with Victor and in time they develop a sexual relationship too. Marjorie and Victor become infected with the virus, as do some people Samuel has been using drugs with (Diagram 1-C).

As each of these individuals continues, over time, to have further IV drug contacts or unsafe sex with others, the virus continues to spread (Diagram 1-D).

It is now three years since Samuel went to the party where he was infected. He left town six months ago, and no one has seen him since. You and I come into the picture here, where we might become involved with one of these people who has had direct or indirect contact with Samuel, Shari, Marjorie or Victor (Diagram 1-E). Perhaps this person only experimented with sex or drugs once. Because the AIDS infection can incubate for several years, no one even suspects him or herself to be at risk. Everyone in this picture looks and feels very healthy.

What could you do if you wanted to be sure to protect yourself from infection with the AIDS virus?

1. Don't use drugs. Don't share needles.
2. Don't have sex.
3. Have safer sex—use condoms, don't exchange semen, vaginal secretions, blood, urine, or feces during sex.

SECTION V: PROBLEM SOLVING

A. About 50% of high school students nationally report being sexually active. What about this school—do you think that number is higher or lower?

B. What do students in this school need to know about AIDS?

C. What are some reasons people might put themselves at risk for infection by the AIDS virus?

1. People might not know about AIDS.

2. People might not know how the AIDS virus is transmitted, so they might not know if they are putting themselves at risk.

3. Sexual risks—a person:

    a. Might not know about safer sex, or might not understand exactly what it is.

    b. Might know about safer sex but be embarrassed to bring it up with a partner.

    c. Might be embarrassed about buying condoms, might not know where to get them, or might not be able to afford them.

    d. Might not like safer sex (believing, for example, that condoms decrease sensation, or that a safer activity like masturbation is not "real" sex).

    e. Might have a partner who does not want to practice safer sex.

    f. Others?

4. Needle use:

    a. An IV drug user probably does not have clean needles available.

    b. A needle user may not know how to clean a needle he or she does have.

    c. An addict may need a drug so badly that concerns about AIDS are not important at the time.

    d. A person sharing needles for steroids, vitamin injections, tattooing, ear piercing, may not think of these activities as AIDS risks.

    e. Others?

D. How can we help change people's beliefs and behaviors about safer sex?

1. Encourage abstinence.
    - Would this work in this school? Why or why not?
2. Educate everyone about safer sex.
    a. Let everyone know what safer sex is.
    b. Educate people about condom use, including how and where to get condoms, how to use them, how to talk about condom use with partners.
    c. Educate about how to make safer sex satisfying.
        - Would this work in this school? Why or why not?
3. Show people on TV or in movies practicing abstinence or safer sex.
4. Others?

SECTION VI: TOSHI'S STORY

Toshi, a man in his early twenties, is home alone while his wife and son are out of town. He is invited to a party by some friends. At this party, some of his friends are using IV drugs. A friend keeps asking him if he wants to try the drug. Toshi at first says no, but after having a few beers, he thinks to himself, "Why not?" Toshi doesn't even know what drug he is trying.

Many months later, Toshi calls his friends to see how they are. He finds out one of the people he shared drugs with at the party has since died of AIDS. Frightened, he takes a test for the AIDS antibody. His result is positive. A counselor at the testing site tells him that this means he has been infected with the AIDS virus. It does not necessarily mean he has AIDS right now, but it is likely that he will become ill in the future. He can pass the virus on to others. This means that he could pass an AIDS infection to his wife if he has unsafe sex with her.

A. What might some of Toshi's concerns be?

1. He might get sick.
2. He might have passed the virus to his wife, or he might pass it to her in the future.
3. He feels he should tell his wife.
4. He is afraid others will find out.

5. He is concerned for his child's health.

6. Others?

(Toshi's concerns for his son offer an excellent opportunity to reinforce that AIDS is not casually transmitted. Because Toshi was not infected with the AIDS virus until after his son was born, the boy is not at risk to develop AIDS.)

B. How might Toshi feel about telling his wife?

   1. Fine—depending on the relationship.
   2. Afraid.
   3. Guilty.
   4. Others?

C. Why might Toshi be afraid of telling his wife?

   1. She might leave him.
   2. She might tell other people.
   3. She might refuse to let him see his child.
   4. She might be very angry or hurt.
   5. Others?

D. What do you think about what Toshi did?

E. Do you think he did anything wrong?

F. What do you think he should do now?

G. Do you think Toshi's experience could happen to anyone you know? Do you think anyone you know could ever be exposed to the AIDS virus?

SECTION VII: CONCLUSIONS

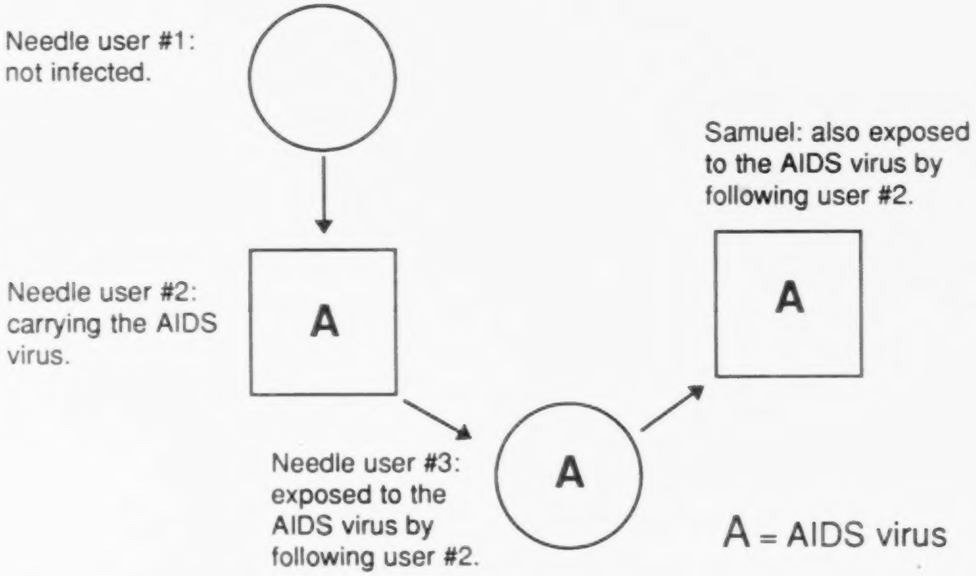
A. If students filled out Worksheet 1, have them look over their answers on the worksheet, and ask the following questions:

   1. Would you change any of your original answers now? If you would, mark those changes in.

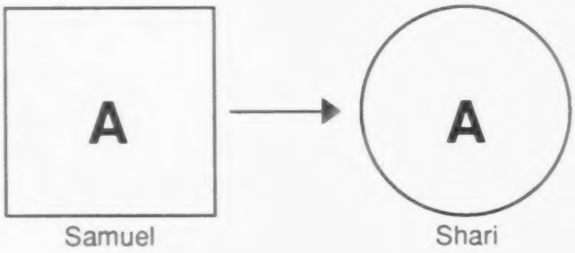
   2. Turn over your sheet and write down the most important thing you learned today.

B. Give test (p. 115) to measure student comprehension. If time is short, the test can be given during the next class session.

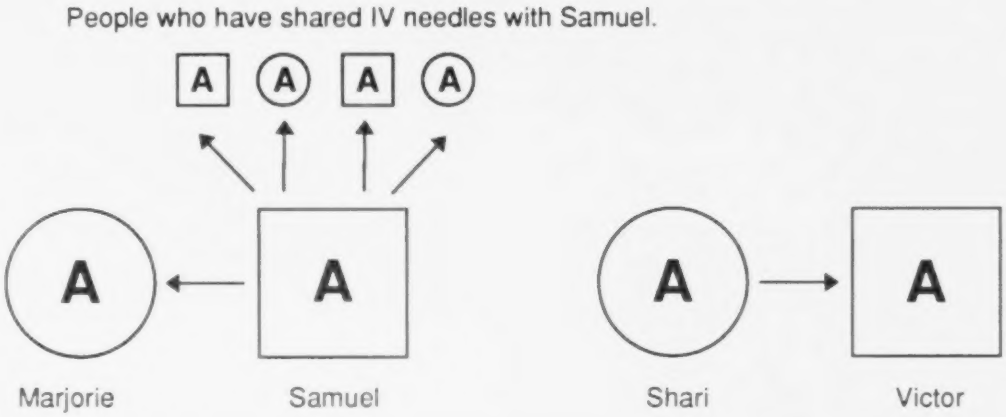
1-A: SAMUEL GOES TO A PARTY AND IS INFECTED WITH THE AIDS VIRUS BY SHARING A NEEDLE FOR IV DRUG USE.


Needle user #1: not infected.
Samuel: also exposed to the AIDS virus by following user #2.
Needle user #2: carrying the AIDS virus.
A
A
Needle user #3: exposed to the AIDS virus by following user #2.
A
A = AIDS virus

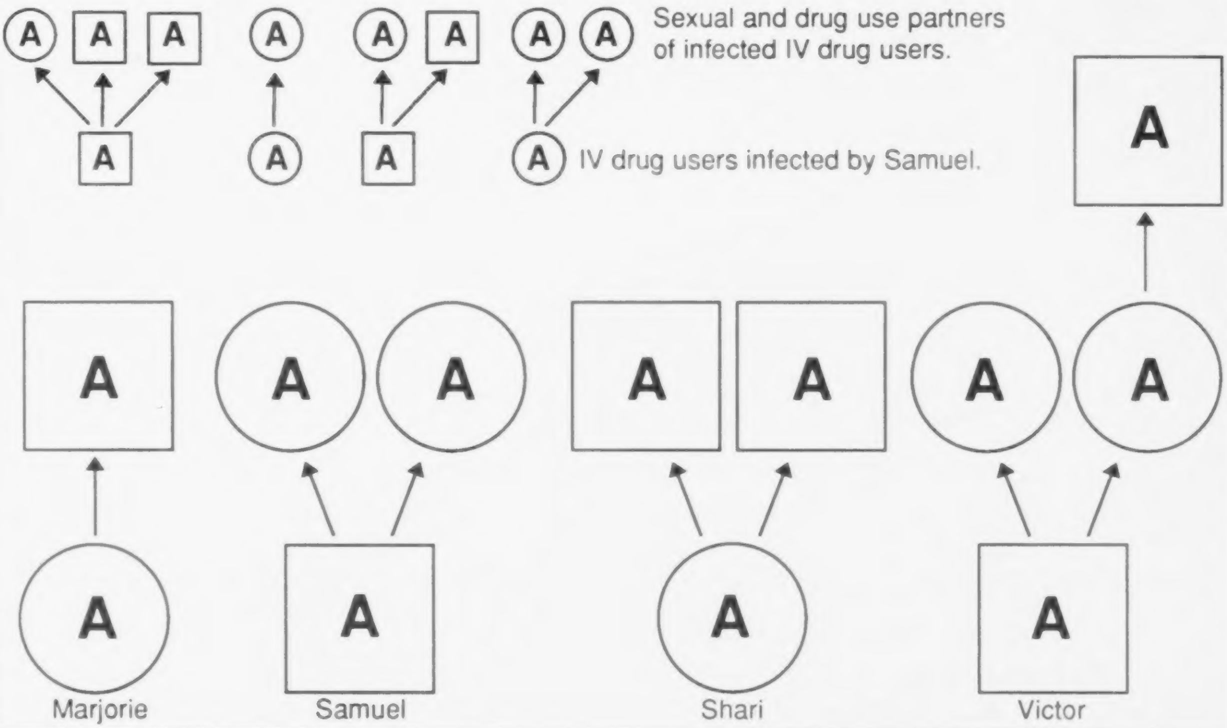
1-B: SAMUEL TRANSMITS THE VIRUS TO HIS GIRLFRIEND SHARI THROUGH UNSAFE SEXUAL CONTACTS.


A
A
Samuel
Shari

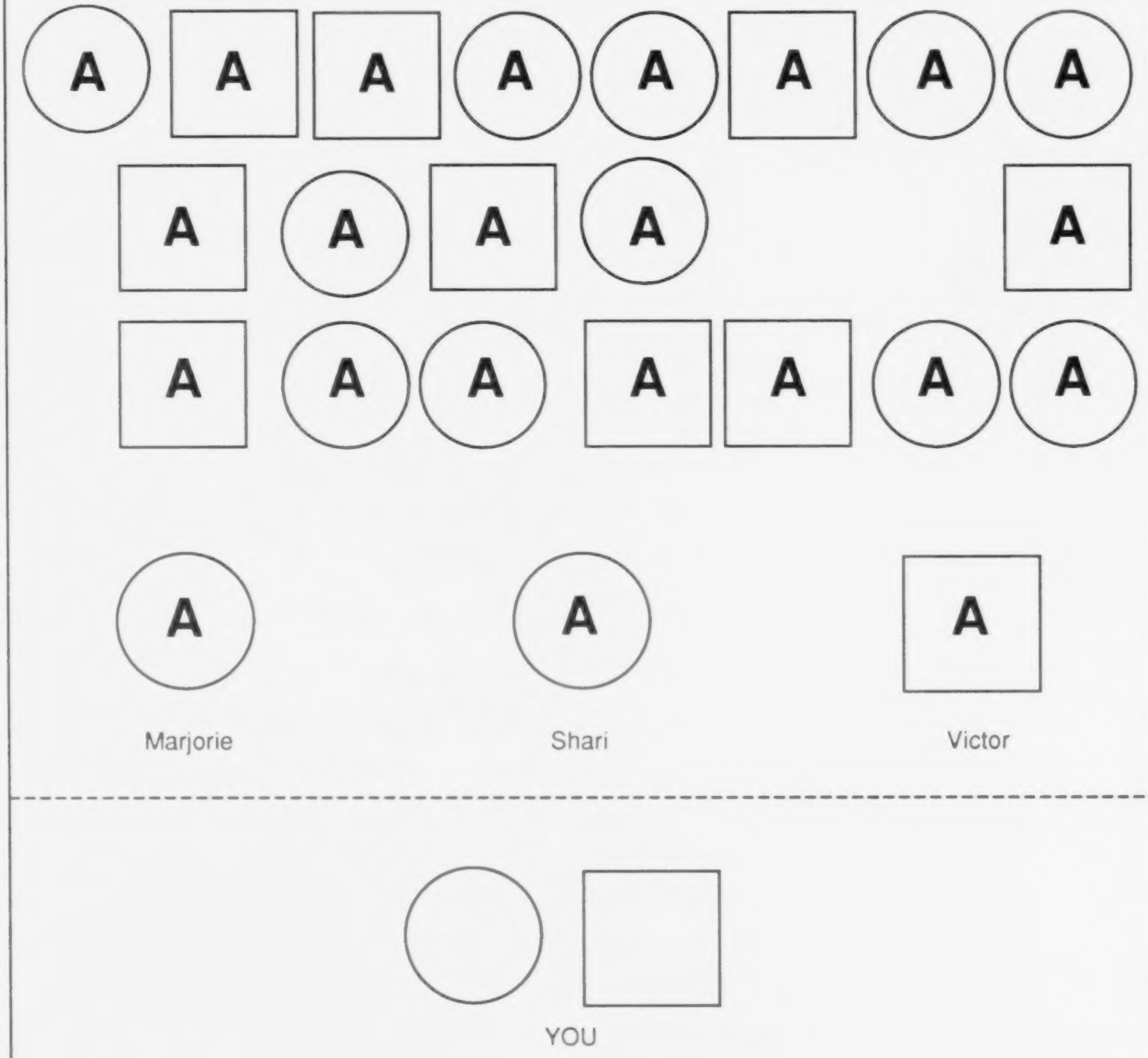
1-C: SAMUEL AND SHARI BREAK UP. SAMUEL BECOMES SEXUALLY INVOLVED WITH MARJORIE. SHARI BECOMES SEXUALLY INVOLVED WITH VICTOR. SAMUEL SHARES NEEDLES WITH OTHERS.


People who have shared IV needles with Samuel.
A
A
A
A
A
A
A
A
Marjorie
Samuel
Shari
Victor

1-D: OVER TIME, EACH OF THESE INDIVIDUALS CONTINUES TO HAVE SEXUAL OR IV NEEDLE CONTACT WITH OTHERS. THE VIRUS CONTINUES TO SPREAD.


Sexual and drug use partners of infected IV drug users.
IV drug users infected by Samuel.
A
Marjorie
Samuel
Shari
Victor

1-E: WHAT CAN YOU DO TO PROTECT YOURSELF IF *YOU* COME INTO THE PICTURE?


A
Marjorie
Shari
Victor
YOU

Plan 2: Public Response to AIDS/HIV

Target:

Social studies, psychology, current events.
Classes in which discussions might commonly include personal reflection and analytic thinking about others.

Purpose:

1. To assist students in assessing public attitudes toward people with AIDS or HIV infection.

2. To allow students to explore their own personal response to the epidemic.

3. To communicate risk information for HIV, risk-reduction guidelines, and clarify that the AIDS virus is not spread by casual contact.

Objectives:

1. Students will know basic information about AIDS/HIV transmission.
2. Students will know risk-reduction guidelines for AIDS.

Format:

1. Lecture/discussion.
2. Written exercises (optional).
3. Test (optional).

Materials:

1. Worksheets 1, 2 or 3 (optional).
2. Test (optional).

Time:

1-3 full class sessions (at teacher's discretion).

Utilization:

Present a short lecture on AIDS/HIV. Select one or more of the discussion sections for the class. Facilitate the discussion, using the suggested questions as guidelines.

PLAN 2: PUBLIC RESPONSE TO AIDS/HIV

Method: Present the "Basic Information About AIDS/HIV" lecture. Then select one or more of the following sections for discussion.

BASIC INFORMATION ABOUT AIDS/HIV

Present the sample lecture, page 25, or your own lecture, including the following:

What is AIDS? What is HIV?
Who gets AIDS/HIV?
How do people get AIDS/HIV?
What is it like to have AIDS?
What is *HIV infection*? What is *AIDS-related complex* (ARC)?
How long is the incubation period for AIDS?
What are the basic guidelines for AIDS prevention?
(List of safe and unsafe sexual activities—p. 23)

SECTION I: GENERAL DISCUSSION ON AIDS

A. What are some responses people have had to AIDS or HIV infection?
What are the responses of people you know?
What are the responses of people you have heard of or read about?
What are your own responses to AIDS/HIV?

Possible answers:

1. Helping out: donating time, money, services, etc., to people with AIDS, to education programs, to research.

2. Learning more about the disease. Staying informed.

3. Educating others about AIDS.

4. Supporting AIDS/HIV prevention. Practicing safer sex, not sharing needles.

5. Being afraid of getting AIDS.

6. Telling jokes about AIDS.

7. Blaming people with AIDS for getting sick.

8. Discriminating against people with AIDS, or against gay men or IV drug users, in the mistaken belief that HIV is casually transmitted.

    a. Firing people from jobs.
    b. Evicting people from homes.
    c. Not letting a person with AIDS ride a bus.
    d. Others?

9. Trying to set up legal means to restrict or protect people with AIDS, HIV infection, or those believed to be at risk.

B. Why are some people afraid of getting AIDS?

Possible answers:

1. Some people are truly at risk, because of sexual or drug practices, or for other reasons. Their fears may be well-founded.

2. Some people are not actually at risk for the disease, but misunderstand they might get AIDS in situations where they cannot get it (such as public pools, restaurants, schools, etc.). Their fears are unfounded.

C. We seem to be hearing a lot about AIDS. There are other serious diseases around, and some are transmitted more easily than AIDS. Why do people seem more concerned about AIDS, and why is everyone talking about it now?

NOTE: An example of a serious and more easily transmitted disease is Hepatitis-B. This disease, like AIDS, is blood borne, and is most often passed through sexual contact or the sharing of needles in IV drug use. It takes *much* less contact with the Hepatitis-B virus to become infected with the disease, and it can be fatal if not properly treated.

Possible answers:

1. AIDS is a very serious disease that has received a lot of attention. Other diseases might be less serious, or may have received less attention.

2. AIDS is a *newer* epidemic, and it is happening *now*. The incidence is increasing. Many other diseases have stable incidences, or an incidence rate that is increasing more slowly than that of AIDS.

3. People misunderstand or are misinformed about transmission, and believe that the AIDS virus can be transmitted in a casual way, or that it is easy to get AIDS/HIV.

NOTE: We know that some viruses and other disease-causing organisms are passed through sneezes, sharing cups, dirty hands, etc. It may be hard for some people to adjust their understanding of diseases, distinguishing this more-casually-transmitted type of virus from the very different, difficult-to-transmit AIDS virus. This is especially likely because AIDS is such a serious disease.

4. People associate AIDS with death and disability, and these are frightening.
5. Some people have a fear of association: "If you get AIDS, people will think you're gay."
6. Some people are frightened of homosexuality (or IV drug use) and in their minds cannot separate AIDS from homosexuals (or IV drug users).
7. AIDS has some important ramifications for sexual practices. Even for people who are not in a high risk group, concerns about contracting the AIDS virus may lead them to change their styles of sexual activity.
8. Others?

SECTION II: "AIDS HYSTERIA"

There are people who have labeled some responses to AIDS as "hysterical"— overemotional reactions not based in fact. Other people might call these behaviors reasonable. What do you think about the following situations?

Case 1: In New York City, at the beginning of the 1985 school year, parents of some 18,000 students refused to allow their children to attend public schools because they had heard a child with AIDS would be attending one of the district's schools.

A. Was this a "hysterical" reaction, or a reasonable one? Why?

B. Was there an actual risk of these children contracting the AIDS virus from another student?

NOTE: There is no risk unless the students are engaging in a risk activity in school (e.g., having unsafe sex or sharing needles). This is obviously quite unlikely. Sharing of bathrooms, cafeterias, school materials, etc., is *not* a risk. Other scenarios—bites, fights, accidents— are not likely to transmit the virus. However, an elementary age or older student with behavioral problems leading to biting, fighting or accidents, who *was* infected with the AIDS virus, probably should *not* be attending school.

In several studies of families where one child was diagnosed with AIDS, sibling-to-sibling transmission has never been discovered. If the AIDS virus is not transmitted in the more intimate setting of family relationships, it is not likely to be transmitted in the schools.

C. What would you say to a parent who refused to allow his or her child to attend school under these circumstances?

Case 2: Jack worked in a large office as a word-processor. He was diagnosed with AIDS and was placed on disability. After his initial period of illness, he was feeling well and able to return to work. When he contacted his company about his plans to return, they informed him he was not to come back to the office. His disability benefits continued, but Jack wanted to work again. His boss, Larry, said he made the decision because he wanted to protect the welfare of others in the office who used the same drinking fountain, kitchen, telephones, supplies, and restroom as Jack.

A. Was Jack being reasonable in expecting to return to work?

B. Were Larry's concerns about the welfare of the other workers in the office legitimate?

C. Were Jack's coworkers at risk to contract the AIDS virus from him?

NOTE: See note above about the unlikely possibility of HIV transmission in schools. Unless Jack's coworkers had unsafe sex with him or shared needles, they would not have a risk to contract HIV infection from him.

D. How would you feel if you were a coworker of Jack's?

Case 3: A television station in the east was interviewing several people with AIDS for a news special. The station's regular camera operators refused to film these people for fear of contracting the disease. A camera team from the west coast was flown out to complete the project.

A. Were the camera operators from the television station justified in refusing to film the people with AIDS? Why or why not?

B. In what professions do you think people might reasonably refuse to provide services to people with AIDS?

NOTE: There are essentially no professions which should refuse services to people with AIDS. For health care personnel (doctors, dentists, nurses, etc.), standard infection control procedures offer good protection against HIV transmission.

SECTION III: REASONS FOR AND CONSEQUENCES OF PEOPLE'S DIFFERENT REACTIONS TO AIDS AND HIV INFECTION

A. We have talked about some of the ways people have responded to the AIDS epidemic. It seems like there are many different responses to the same disease. Why do you suppose people react in such different ways to AIDS?

Possible answers:

1. Fears (of gay people, of disease, of death, of differences between people, etc.).

2. Level of knowledge and education (how much someone knows about AIDS and how the virus is transmitted, etc.).

3. Moral beliefs:

    a. If you believe it is good to help others, you might help out AIDS prevention organizations or people with AIDS.

    b. If you believe homosexuality, drug use, or sex in general is bad, you might feel you should not help out people with AIDS, or that you do not want to be involved.

4. Different personality types: optimists, pessimists, helpers, problem-solvers, complainers.

5. Past experiences: Knowing someone with AIDS or someone at risk for AIDS makes it more likely you will (1) sympathize with others with AIDS; (2) change high-risk behaviors of your own; (3) volunteer or help in some other way.

6. Others?

B. What sorts of problems might arise when people's negative judgments about homosexuality or IV drug users affect their reaction to AIDS?

Possible answers:

1. Not supporting research. Anyone can get AIDS under certain circumstances. Finding cures, treatments and vaccines is important for everyone.

2. Not supporting prevention or education. AIDS has created a tremendous demand on national resources—for medical research, for medical treatment, for mental health and social support services, on young and productive members of the workforce, etc. Prevention—educating people about the disease and how to stop its transmission—is the most cost-effective way to respond to the epidemic. It is the *only* way at present to stop the spread of the disease.

3. Mistreatment of and discrimination against people with AIDS, or those thought to be at risk for AIDS.

C. DISCUSS: People reacting to AIDS through fear, misunderstanding, poor judgments, etc., creates confusion, interferes with education, slows research and hurts others. What can be done to help people understand AIDS better and react in a positive, helpful manner?

Plan 3: Civil Rights Issues Involving AIDS and HIV Infection

Target:

Civics, social studies, history, ethics.

Classes interested in civic concerns, and/or challenged by issues without clear-cut answers.

Purpose:

1. To examine the relationship between civil liberties and public welfare, using AIDS and HIV infection as a current and relevant example.

2. To communicate risk information for AIDS/HIV, risk reduction guidelines, and clarify that the AIDS virus is not spread by casual contact.

Objectives:

1. Students will have an appreciation of the difficulties involved in guaranteeing individual freedoms while protecting public welfare.

2. Students will know basic information about HIV transmission.

3. Students will know risk-reduction guidelines for AIDS/HIV.

Format:

1. Lecture/discussion.
2. Written exercises (optional).
3. Objective exam (optional).

Materials:

1. Worksheets 1, 2, 3 or 4 (optional).
2. Test (optional).

Time:

1-3 full class periods (at teacher's discretion).

Utilization:

Present a short lecture on AIDS/HIV. Select case examples from those given and share with students. Facilitate discussion using the suggested questions as guidelines.

PLAN 3: CIVIL RIGHTS ISSUES INVOLVING AIDS AND HIV INFECTION

Method: Present the "Basic Information About AIDS/HIV" lecture. Then select one or more of the following sections for discussion.

BASIC INFORMATION ABOUT AIDS/HIV

Present the sample lecture, page 25, or your own lecture, including the following:

What is AIDS? What is HIV?
Who gets AIDS/HIV?
How do people get AIDS/HIV?
What is it like to have AIDS?
What is *HIV infection*? What is *AIDS-related complex* (ARC)?
How long is the incubation period for AIDS?
What are the basic guidelines for AIDS prevention?
(List of safe and unsafe sexual activities—p. 23)

NOTE: For this unit, it is especially important to make clear the fact that HIV is *not* casually transmitted, since this has significant bearing on some of the discussion issues.

SECTION I: SCHOOL AND AIDS/HIV

Daniel is a popular high school junior who has been diagnosed with AIDS. He became ill in October and was absent from school for several weeks. When he returned to school, he was fatigued but ready to continue his classes. Because he is well-known on campus, his absence was noticed by other students. He has told people that he has AIDS.

A. Do you think Daniel should be allowed to continue to attend school? How would you feel if he was in some of your classes?

B. Should any special provisions be made for Daniel? What do you think about his using the same cafeteria, gym, pool, locker room and bathrooms as other students?

C. How do you think other students in our school would react if a student here were diagnosed with AIDS?

D. Let's change the story a bit. Imagine that Daniel became sick in the summer, so people were not aware of his illness. He returned to school in the fall, looking perfectly healthy. He did not tell anyone he had AIDS. Do you think this would be okay?

E. Would any of your feelings about this change if we were talking about a fourth grader instead of a high school student? A first grader?

F. Some parents have insisted that they have a right to know if their children are attending school with another child who has AIDS. Do you agree?

NOTE: Informing parents would violate the privacy of the child with AIDS and his/her family, and would be illegal.

G. Imagine that the character in our story is *Mr.* Daniels, a teacher in your school. Should he be allowed to teach? How would you feel if he were one of your teachers?

H. What about other school personnel? If they have AIDS, should they be able to continue their work? (Consider administrators, counselors, secretaries, janitors, cafeteria workers, etc.)

I. What kind of education about AIDS do you think is necessary in this school? What do the students here need to know about the disease? How should that information be shared with them?

SECTION II: EMPLOYER/EMPLOYEE RELATIONS AND AIDS/HIV

Sharon is a sales clerk in a clothing store. She is not actually diagnosed with AIDS. She has, however, developed medical conditions related to HIV infection. She feels well enough to continue working, but mentions her condition to her boss, Helen, because she will need some extra time off for medical appointments.

A. Her boss is concerned that other people working with Sharon will be exposed to HIV. What would you tell Helen about this?

B. Helen has had a difficult time keeping employees for very long. She believes that when her other employees find out about Sharon's illness, they will be afraid and quit their jobs. What should Helen do?

C. Helen overhears someone on the street saying they will not shop at the store any longer because one of the clerks there is sick with AIDS. She believes Sharon's presence in the store is hurting business. What should she do?

D. Would you go to a store that employed someone with AIDS or HIV infection? A restaurant?

E. Do you think there are any jobs that people with HIV should not be allowed to do?

F. Do you think there should be rules or laws protecting individual employees who may have HIV from being fired?

G. Do you think the business community in general has any responsibility to educate people about AIDS and HIV infection?

H. What do you think the businesses in our own community should do about AIDS and HIV infection?

SECTION III: ACCESS TO SERVICES FOR PEOPLE WITH AIDS OR HIV INFECTION

Justin is a gay man with AIDS. He has Kaposi's sarcoma, and some of the lesions from the disease show on his face. He has just boarded a bus and paid his fare. The bus driver, seeing the lesions, says, "I'm not going to have you on this bus because you have AIDS. I have other passengers to protect. You will have to get off the bus." Justin refuses to get off the bus; he sits in one of the available seats. The bus driver refuses to start the bus again until Justin gets off. The other passengers begin to get angry because they are trying to get somewhere, and the bus is just sitting there. Some of them yell at the bus driver, and some of them yell at Justin.

A. If you were one of the passengers on the bus, what would you do?

B. What would have been the best thing for Justin to do in this situation?

C. What would have been the best thing for the bus driver to do in this situation?

D. Should people with AIDS or HIV infection be free to ride public buses?

E. If you were manager of the bus system, what kind of policy do you think you might set for situations like this?

F. Are there any public services you can think of (stores, restaurants, gyms, theaters, schools, health clinics, bars, national parks, etc.) that should be limited in some way for people with HIV infection?

SECTION IV: FAMILIES AND AIDS/HIV

Roberto is a one-year-old boy who was adopted into a family with a mother, a father, a four-year-old brother Juan, and a six-year-old sister Maria. The family loves Roberto very much and is happy he has come to live with them. He has had a lot of health problems, which doctors could not explain for some time. Now the parents have found out that Roberto has AIDS, apparently transmitted from his biological mother, who is a user of IV drugs. Roberto has been in the hospital but is scheduled to be released soon.

A. If you were the parents in this family, what would you do?

B. Should Roberto be allowed to return to his home?

NOTE: There has never been a case of HIV being transmitted within a family except where there has been a sexual relationship, such as between husband and wife. Many families with children have been studied, and in no instance has one child with AIDS infected any other child in the family.

C. Do you think a parent with AIDS should be allowed to care for his or her children?

D. A social worker involved with Roberto's case has just discovered that the boy's biological mother is pregnant again. What should be done in this instance?

NOTE: There are laws in the United States against forced sterilization or abortion. A child born to a mother infected with AIDS has about a 50% chance of also being infected. A child with HIV is likely to face a limited life-span filled with much illness and multiple hospitalizations. The cost of care for such children is very high, and often is paid by public funds. This is because the mothers, if they are IV drug users, do not usually have the resources to pay for such care themselves and do not have medical insurance.

SECTION V: PERSONS WHO KNOWINGLY PUT OTHERS AT RISK FOR HIV

A man with symptomatic HIV infection was seen several times in a public clinic for treatment of gonorrhea. He admitted being sexually active with a number of different partners weekly. He may have been passing the virus for AIDS to others in his sexual encounters.

A. What should be done in this instance?

NOTE: Many localities have laws whereby persons who knowingly transmit diseases to others can be quarantined or detained in hospitals or correction facilities.

B. Have you heard of other instances where someone who knew he or she had AIDS continued to expose others to the disease?

NOTE: There have been a variety of press reports of such cases.

C. Do you think this is a common response for someone infected with the AIDS virus?

NOTE: Most people diagnosed with AIDS or HIV infection, and most of those who know they are at risk for the disease, are conscientious about not putting others at risk. They do not have unsafe sex, share needles, donate blood, etc. In fact, research in San Francisco shows that about 80% of gay men there have altered their sexual practices to avoid exposure to or transmission of the AIDS virus. This is a remarkable statistic, and shows a more powerful response to this health crisis than any other in history. (Consider, for example, how many people continue smoking, eat high-fat diets, refuse to wear seatbelts, etc., even though there are well-documented life-threatening risks in doing so.)

D. Should people infected with HIV be restricted from sexual activity? If so, what activities? If so, how should this be enforced?

NOTE: There is no reason a person infected with HIV cannot continue to have an active and pleasurable sex life. Guidelines for safer sexual contact are clear and people following such guidelines do not pose a risk to others. For a specific list of safe and unsafe sexual activities, see p. 23.

E. Occasionally, there have been suggestions of quarantining people with AIDS in some way to slow or stop the spread of the disease. Is this a useful idea? What would or would not work about this idea?

NOTE: Currently (1990), one and a half to two million people in the U.S. are estimated to be infected with the AIDS virus and capable of transmitting it to others. It is assumed that these people will be infectious throughout the remainder of their lives. There is no practical way to quarantine so large a number of people. Such a quarantine would be devastating to the country socially and economically. Further, there is a civil liberties issue about quarantines generally, and of restricting people's freedom when there is no evidence of any wrongdoing. The only practical answer at present is education and support for the practice of no-risk behaviors.

Plan 4: Epidemics and AIDS/HIV

Target:

History, social studies, general science.

Classes that enjoy discussions and are able to make deductions about different examples of similar situations.

Purpose:

1. To examine some historical examples of epidemics, comparing past experiences with the present-day situation of the AIDS epidemic.

2. To communicate risk information for AIDS/HIV, risk-reduction guidelines, and clarify that the AIDS virus is not spread by casual contact.

Objectives:

1. Students will have a sense of the historical context of epidemics and understand the AIDS epidemic in this light (in particular in terms of public reaction to past epidemics, fears of contagion, the myths that persist about epidemics).

2. Students will know basic information about HIV transmission.

3. Students will know risk-reduction guidelines for AIDS/HIV.

Format:

1. Lecture/discussion.
2. Written exercises (optional).
3. Test (optional).

Materials:

1. Worksheets 1, 2 or 3 (optional).
2. Test (optional).

Time:

1-3 full class periods (at teacher's discretion).

Utilization:

Present a lecture on one or more of the epidemics described in the teaching plan, using the outline as a guide. Select appropriate items from the suggested discussion questions and facilitate the class discussion.

PLAN 4: EPIDEMICS AND AIDS/HIV

Method: First, present the "Basic Information About AIDS/HIV" lecture, then present the information in Section I. Select one or more of the following sections for further lecture and discussion. Conclude the class or series of classes with discussion section 5: Looking at the AIDS Epidemic.

BASIC INFORMATION ABOUT AIDS/HIV

Present the sample lecture, page 25, or your own lecture, including the following:

What is AIDS? What is HIV?
Who gets AIDS/HIV?
How do people get AIDS/HIV?
What is it like to have AIDS?
What is *HIV infection*? What is *AIDS-related complex* (ARC)?
How long is the incubation period for AIDS?
What are the basic guidelines for AIDS prevention?
(List of safe and unsafe sexual activities—p. 23)

SECTION I: SOME GENERAL INFORMATION ABOUT EPIDEMICS

A. AIDS is not the only epidemic the world has ever seen, though it is one we hear a lot about right now.

B. A medical definition of "epidemic": An illness or disease that occurs at significantly greater frequency than expected in a given population (that is, more people get it than you expect to).

C. Some myths that have developed about epidemics:

1. "Everyone gets sick in an epidemic."

   More people than expected get sick. There are always some people who have a natural resistance to any particular disease. There are always some people who are not exposed. Even in the worst plague epidemics of the Middle Ages, many more people lived than died.

2. "Epidemic diseases are fatal."

   Diseases that are not necessarily fatal can still be epidemic. For example, sexually transmitted diseases (STDs or VD) are epidemic in the United States, but most are not fatal if treated medically.

Questions:

A. What do you think of when you hear the word "epidemic"?

B. What are some other myths people have about epidemics?

SECTION II: A SPECIFIC EXAMPLE: THE BUBONIC PLAGUE IN EUROPE

A. Epidemics were common in the Middle Ages, occurring about every 25 years or so. The worst plague ever recorded in Europe was The Great Plague of 1348-1349. This was also called "The Black Death."

B. What it was like in Europe during 1348-1349:

   1. Very high mortality: one-fourth or more of the population of Europe died (some 25,000,000 people overall).

   2. Social order collapsed: commerce stopped, food production was very low, the courts stopped meeting, there was no policing of crimes.

C. What bubonic plague is like:

   1. Easily transmitted: people contracted bubonic plague from the bites of fleas who had gotten the infection from infected rats. Living conditions in cities were crowded and unsanitary; rats and fleas flourished. Many people were infected and the disease spread rapidly.

   2. It is a very painful disease.

   3. Universal mortality: almost everyone who got the disease died. At the time, there was no treatment and no cure.

   4. Very fast-moving: people usually died one to three days after being infected.

D. How people responded to the disease:

   1. They did not know how it was caused.

   2. They were afraid of catching it from those already infected, so the sick were often abandoned to die alone.

   3. Many methods were used to avoid catching the disease. Some examples:

      a. Prayer to God.

      b. Devil worship.

   c. Wearing amulets or charms.
   d. Chanting incantations.
   e. "Abracadabra": a magic word used to ward off plague.
   f. Burning incense or leaves, or burning things that filled the air with foul smells.
   g. Stop bathing.
   h. Stop having sex.
   i. Staying inside at night.
   j. Some doctors recommended washing with or drinking goat urine.

4. Blaming others: In many communities in Europe, Jews were blamed for causing or deliberately spreading the plague. They were accused of poisoning wells and planning the demise of the Christian population, even though Jews were dying of plague as much as Christians. Mass persecutions were common, and hundreds of thousands of Jews were massacred throughout Europe during these times. When the plague stopped, so did the persecutions.

Questions:

A. Does it seem like any of our current ideas about epidemics might come from the European epidemics of six centuries ago?

B. Why do you suppose Jews were blamed for causing the plague?

NOTE: Jews faced powerful discrimination during this period in Europe. Without the full legal and other civil protections accorded Christians, they were an easy population to scapegoat. Authorities and writers of the time often participated in or encouraged these persecutions during times of plague.

C. Do you see any parallels between this European plague and the AIDS epidemic of today?

Possible answers:

1. Fear because of uncertainty or poor information about AIDS.
2. Abandoning those who are sick because of fears of contagion (an occasional

occurrence with people with AIDS or HIV in medical settings, housing, or by their families).

3. Blaming gay men for the existence of the disease, suggestions that gay men are deliberately spreading HIV, increased persecution of the gay population.

SECTION III: ANOTHER EXAMPLE: BUBONIC PLAGUE IN SAN FRANCISCO

A. Bubonic plague appeared in San Francisco in 1900. It was first diagnosed in a Chinese man.

B. Most cases were diagnosed among Chinese people.

C. The San Francisco Board of Health believed Chinatown was a source of disease because of "unwholesome odors."

D. Chinese people were blamed for the disease.

E. Actions taken by city, state and federal authorities:

1. Chinatown residents were placed in quarantine.

2. The city did not provide health care to residents of Chinatown.

3. No changes were made in the poverty or overcrowded conditions in Chinatown.

4. Chinese and Japanese people could not leave California without a federally-issued medical certificate.

5. Detention camps for San Francisco's 14,000 Chinese residents began to be prepared.

6. The State Board of Health recommended that Chinatown be razed to the ground and saturated with chloride of lime and carbolic acid. The plan was not implemented immediately, and then the 1906 earthquake destroyed Chinatown.

F. San Francisco's next outbreak of plague occurred in 1907. Most of the sick were Caucasian; few were Chinese. The Board of Health implemented a citywide rat-eradication program, destroying infected rats and their fleas. The disease was stopped.

Questions:

A. Why do you suppose Chinese people were blamed for the 1900 outbreak of bubonic plague in San Francisco?

Possible answers:

1. Higher incidence of the disease among Chinese population.
2. The Chinese experienced many forms of discrimination at that time in San Francisco. They were an easy population to scapegoat.

B. Given that bubonic plague is spread by contagious rats and fleas, do you think the quarantine of Chinatown stopped the spread of disease?

NOTE: It did not.

C. Why do you suppose more Chinese people than others got the plague in 1900?

NOTE: Overcrowding and poverty led to conditions where rats and fleas flourished in Chinatown. More infected rats means more infected fleas, which means more infected people.

D. Would detention camps have stopped the spread of plague?

NOTE: No. Detaining *people* would not have helped. Only the eradication of rats and fleas helped. In fact, further crowded conditions in a detention camp could increase the incidence of the disease.

E. Do you see any parallels between this epidemic and the AIDS epidemic today?

Some examples:

1. Unnecessary precautions were taken because of uncertainty or poor information about plague; this is sometimes true with AIDS/HIV as well. For instance, some hospital workers have insisted on wearing gloves and masks when working with people with HIV, even when their work will not bring them into contact with risky body fluids.
2. There are cases where people with AIDS are not provided with medical treatment, as was true with the Chinatown plague cases of 1900.
3. Blaming gay men for the existence of AIDS; increased persecution of the gay population.

SECTION IV: ANOTHER EXAMPLE: SEXUALLY TRANSMITTED DISEASES AMONG AMERICAN TEENAGERS

A. Sexually transmitted diseases, also called STDs, or sometimes VD, are usually passed from person to person during intimate sexual contact. Currently, American teenagers (and young adults) are at risk in an epidemic of STDs.

B. One in seven teenagers currently has an STD. (85% of reported STDs are in persons 15-30 years old.)

C. STDs can be prevented. Some methods:

1. Abstaining from sex altogether.
2. Abstaining from sex when one partner is infected with an STD.
3. Limiting the number of partners decreases a person's risk.
4. Proper use of a condom (rubber) can prevent transmission of STDs.

D. Laws regarding medical treatment of STDs vary from state to state. In California, anyone 13 or older can be confidentially diagnosed and treated for STDs without parental consent.

More information: The STD National Hotline, (800) 227-8922.

Questions:

A. What is it like to find out you are in a risk group for an epidemic?

B. How do you feel about teenagers generally, knowing that so many of them have STDs?

C. Who do you think is to blame for the epidemic of STDs among young Americans?

D. Since STDs can be prevented (by methods outlined above), why do you suppose there continues to be an epidemic of STDs?

E. What might be done to try to end the epidemic of STDs among teenagers?

F. Do you see any parallels between this epidemic and the AIDS epidemic?

SECTION V: LOOKING AT THE AIDS EPIDEMIC

Questions:

A. The United States is currently experiencing an epidemic of AIDS and HIV infection. Has this affected you in any way? If so, how? If not, why do you suppose it has not affected you?

B. What do you think we can learn from history that might help us, as individuals or as a nation, in coping with the AIDS epidemic?

C. What do you think should be done for people with AIDS or HIV in our community?

D. What sorts of things do teenagers need to know about AIDS? How could they best get that information?

NOTE: There are other interesting epidemics in U.S. history that could also be used as examples in this teaching module. The influenza epidemic in World War I killed many people and was an easily transmitted disease; in some areas it totally changed the social and civic structures. The polio epidemic in the 1950s was a source of tremendous concern. Its cause was unknown for some time, and people often took extreme and unnecessary precautions to avoid it. As with the other epidemics discussed here, fear and misunderstanding only compounded the tragedies of the diseases.

Plan 5: STDs and AIDS/HIV

Target:

Family life education, sex education, health education, general classes.

Purpose:

1. To encourage students to conceptualize HIV infection as a sexually transmitted disease.
2. To clarify how HIV is and is not transmitted, and address the issue of heterosexual risk.
3. To communicate risk information for HIV, risk reduction guidelines, and clarify that HIV is not spread by casual contact.

Objectives:

1. Students will be able to consider AIDS/HIV in the context of other sexually transmitted diseases.
2. Students will know basic information about HIV transmission.
3. Students will know risk-reduction guidelines for HIV.

Format:

1. Lecture/discussion, integrated into any already-existing teaching plan on STDs.
2. Written exercises (optional).
3. Test (optional).

Materials:

1. Worksheets 2, 3 or 5 (optional).
2. Test (optional).

Time:

This material can be presented as a single class session. It can also be abbreviated so that it represents one segment of a single class lecture covering STDs generally.

Utilization:

Present a short lecture on AIDS/HIV. Select appropriate items from the suggested questions and facilitate the class discussion.

PLAN 5: STDs AND AIDS/HIV

Method: Present your basic unit on sexually transmitted diseases. Then present the "Basic Information About AIDS/HIV" lecture. Select one or more of the following sections for further discussion. You might want to review Plan 4, Section 4 (p. 64), which addresses the STD epidemic among American teenagers.

BASIC INFORMATION ABOUT AIDS/HIV

Present the sample lecture, page 25, or your own lecture, including the following:

What is AIDS? What is HIV?
Who gets AIDS/HIV?
How do people get AIDS/HIV?
What is it like to have AIDS?
What is *HIV infection*? What is *AIDS-related complex* (ARC)?
How long is the incubation period for AIDS?
What are the basic guidelines for AIDS prevention?
(List of safe and unsafe sexual activities—p. 23)

SECTION I: AIDS/HIV AND OTHER STDs

A. In what ways is AIDS/HIV different from other STDs?

1. Currently, there is no cure for AIDS/HIV.
2. AIDS is significantly more lethal than other STDs, with few persons diagnosed living more than two years.
3. It receives much more attention from the press.
4. People are more afraid of AIDS/HIV than of other STDs.
5. Many people who might agree they have a risk for other STDs would not consider themselves to be at risk for AIDS/HIV.

B. In what ways is AIDS/HIV similar to other STDs?

1. Anyone can get HIV infection if they are exposed under the proper circumstances.
2. There is a certain amount of social stigma attached to having AIDS or HIV , as is true with other STDs.

3. There is a *carrier state* to the disease, where an infected person may look and feel healthy but can transmit the disease to others.

4. AIDS/HIV can be prevented.

5. Like other STDs, AIDS/HIV is often transmitted through sexual intercourse. (It can also be transmitted through the sharing of needles for IV drug use.) You cannot become infected from doorknobs, towels, cups, telephones, toilets, etc.

SECTION II: HETEROSEXUAL TRANSMISSION OF AIDS/HIV

For some time after AIDS was described, it seemed unlikely that it would spread in any significant way beyond the gay male population. Now we hear warnings that heterosexual transmission is also a risk.

A. Why do you suppose AIDS first appeared among large numbers of gay men?

NOTE: Gay men as a group tend to have a larger number of sexual partners than heterosexuals as a group. Larger numbers of partners means a faster spread of an STD within any population. Some people have suggested that particular kinds of sexual activities practiced by many gay men, especially anal intercourse, further contributed to the rapid transmission of HIV. Anal intercourse is an especially risky activity. (It is important to remember, however, that it is not an activity exclusive to gay men. *Many* heterosexuals practice anal sex.)

B. How would a sexually transmitted disease found mostly among gay men begin to infect a heterosexual population?

   1. If an IV drug user shares a needle with someone who has HIV, the virus can be transmitted. It does not matter whether the person shared with is gay or heterosexual. Once the virus enters a community of IV drug users it can spread quickly. The majority of IV drug users are heterosexual.

   2. The sexual partners of infected IV drug users may become infected with HIV through unsafe sexual practices. Again, the majority of these partners are heterosexual.

   3. Some women may have unsafe sexual contact with bisexual men who are infected with HIV. If a woman became infected this way, she could also infect future male partners (who could infect future female partners, etc.).

Important to remember: You can't tell just by looking that a person is gay or bisexual, or that someone has used drugs intravenously. You can't tell just by looking who a person's past sexual partners have been. Often you can't tell by *asking* either, because people may not know themselves about the risk status of past partners.

C. How serious is the risk of AIDS/HIV for sexually active heterosexuals?

NOTE: Sexual transmission of HIV from men to women and from women to men is known to occur. Relative numbers of persons diagnosed with AIDS whose only risk factor is heterosexual contact have remained small—about 5% of total cases. Because of the long incubation period of the AIDS virus, it is difficult to predict whether this trend will change in the future. However, many public health experts expect that it will. Even if the percentage of heterosexual cases stays small, the actual number of cases is 5,630.

D. When the herpes epidemic came to national attention, many sexually active people made significant changes in their sexual behaviors. How do you think AIDS is likely to affect people? How will this affect people you know? Have people you know already changed behaviors to protect themselves from HIV?

SECTION III: CHANGING BEHAVIORS/MAKING SAFER CHOICES

A. What behaviors will people need to follow to prevent the further transmission of HIV?

1. Don't use IV drugs; or if using, never share needles.
2. Abstain from sex.
3. Have sex with fewer partners. (This decreases the chances of contracting HIV, but does not eliminate the risk.)
4. Have only safer sex; that is, do not have any kind of sex that involves an exchange of semen, blood, or vaginal secretions. Use condoms for all types of sexual intercourse. (For a specific list of safe and unsafe sexual activities, see p. 23.)

B. What is the likelihood that people will take the necessary steps to protect themselves from AIDS/HIV?

NOTE: There is no clear answer here. A San Francisco study showed that over 80% of gay men there had made significant changes in their risk behaviors to avoid exposure to or transmission of AIDS. This is a remarkable and unprecedented response to a health threat—compare, for example, the resistance of smokers to change their risk behaviors. San Francisco has the highest per capita incidence of AIDS in the nation, and most gay men in the city have many friends and acquaintances who have been diagnosed. Whether the response of this group will be repeated among other groups who do not currently share that experience is not yet known.

C. What would keep people from taking steps to protect themselves from AIDS/HIV?

1. Not knowing about AIDS, or not having information about how to prevent AIDS/HIV.

2. Not wanting to change.
3. Not believing they are really at risk for AIDS/HIV.
4. Not being able to react to a disease that might show up five or more years after the time of infection (the consequences of unsafe behaviors are too delayed).
5. Not caring about the future.
6. Not knowing anyone with AIDS, and not being affected in any way by the disease.
7. Having friends or a sexual partner who does not support the idea of practicing safe behaviors.

D. What sorts of things might encourage people to protect themselves from AIDS/HIV?

1. Knowing about AIDS/HIV and how to prevent it.
2. Believing that you are personally at risk for AIDS/HIV.
3. Believing that if you do change your behaviors, it will protect you from getting AIDS/HIV.
4. Knowing someone who has AIDS or HIV infection.
5. Knowing others who practice safe behaviors.
6. Being involved with a sexual partner who wants to practice safer sex.

SECTION IV: EVELYN AND HAROLD

Evelyn and Harold are people in their mid-twenties who are single and sexually active. They begin dating. It seems likely, after a few dates, that they will begin to have a sexual relationship. Evelyn managed to practice safer sex with her last boyfriend, John, by suggesting they use a condom and spermicidal jelly as their birth control method. Harold, however, has had a vasectomy. Evelyn is worried about how he will react if she brings up her wish to practice safer sex because of her concerns about AIDS.

A. What do you think Evelyn should do in this situation?

B. How might Evelyn bring up the topic of safer sex?

C. How might Harold react if she says she wants to practice safer sex?

D. Imagine that Harold and Evelyn talk about safer sex, and Harold says he is absolutely not interested in using a condom, that this is why he had a vasectomy in the first place. What do you think Evelyn should do?

E. Imagine that Evelyn has had a past relationship with a bisexual man. She suspects she may have been exposed to the AIDS virus, and part of her concern in her relationship with Harold is to protect him. Do you think she could tell Harold about this? What might happen if she did?

F. What might make this entire situation easier for both Evelyn and Harold?

NOTE: The story of Evelyn and Harold is based on the real-life experiences of a woman in circumstances like Evelyn's. In this vignette, Evelyn promotes safer sex and Harold resists.

A participant in one of our trainings commented that, true as the story may be, Harold is a poor male role model and is stereotyped. She made this excellent suggestion: Adapt the vignette, so that Evelyn is not interested in using a condom for intercourse because she has had a tubal ligation. Have Harold be the person promoting safer sex. Divide the classroom into small groups and have half work with one version of the vignette and half with the other. In a subsequent full-class discussion, the lesson could consider the impact of sex role stereotypes on individuals' efforts to protect themselves from infection.

Plan 6: HIV—The AIDS Virus

Target:

Biology, physiology, immunology, general science, general classes. No special background in science is necessary.

Purpose:

1. To explain how the AIDS virus operates, including its effects on the immune system and its style of replication.
2. To outline future directions in HIV viral research.
3. To communicate risk information for AIDS/HIV, risk-reduction guidelines, and clarify that HIV is not spread by casual contact.

Objectives:

1. Students will have a basic understanding of the AIDS virus: how it operates, its effects on the immune system and how it replicates.
2. Students will know basic information about AIDS/HIV transmission.
3. Students will know risk-reduction guidelines for AIDS/HIV.

Format:

1. Lecture/discussion.
2. Test (optional).

Materials:

1. Test (optional).

Time:

1-2 full class sessions (at teacher's discretion).

Utilization:

Present a short lecture on AIDS/HIV. Then present the information on the AIDS virus as outlined.

PLAN 6: HIV—THE AIDS VIRUS

Method: Present the "Basic Information About AIDS/HIV" lecture. Then follow the outline as given to present information about the AIDS virus. If lab work is part of your class curriculum, please review "Infection Control Guidelines for Classes Working with Body Fluids," p. 145.

BASIC INFORMATION ABOUT AIDS

Present the sample lecture, page 25, or your own lecture, including the following:

What is AIDS? What is HIV?
Who gets AIDS/HIV?
How do people get AIDS/HIV?
What is it like to have AIDS?
What is *HIV infection*? What is *AIDS-related complex* (ARC)?
How long is the incubation period for AIDS?
What are the basic guidelines for AIDS prevention?
(List of safe and unsafe sexual activities—p. 23)

SECTION I: BASIC INFORMATION ABOUT VIRUSES

A. What is a virus?

1. A virus is a bundle of genes surrounded by a protein coating, carrying instructions for copying itself but without the mechanism for reproduction. Strictly speaking, a virus is not actually alive because it cannot reproduce itself.

2. Must invade a living cell to reproduce itself.

3. Smaller than any living organism. Smaller than waves of light; can only be seen with scanning electron microscopes.

B. What are some of the ways viruses affect our lives?

1. Human disease:

    a. Short-term, usually nonlethal diseases (colds, flu, chicken pox).

    b. Long-term, usually nonlethal diseases (herpes).

    c. Severe illnesses that may be life-threatening (various forms of hepatitis, polio, AIDS/HIV).

        d. Involved in development of some forms of cancer.

    2. Animal disease:

        a. Can invade livestock, which need to be destroyed if they have certain viral infections, thereby contributing to food shortages.

        b. Can invade pets (feline leukemia, rabies and equine encephalitis all kill the animals affected).

    3. Plant diseases:

        a. Destroy food crops and contribute to food shortages.

SECTION II: THREE IMPORTANT CONCEPTS ABOUT THE EFFECTS OF DISEASE-CAUSING MICRO-ORGANISMS

A. These concepts are useful in understanding the different levels at which humans, animals or plants are affected by viruses or other micro-organisms.

    1. EXPOSURE. Actual physical contact with a disease-causing organism. Exposure does not necessarily mean an individual is infected or develops disease. If a person with a cold sneezes near you, you may be *exposed* to the virus causing the cold if any airborne moisture droplets from the sneeze reach your own mouth or nose.

    2. INFECTION. After exposure, a disease-causing organism may invade cells in your body. This is "infection." Infection does not necessarily mean symptoms will develop. If you are exposed to and then infected with a cold virus, your immune system may be able to stop the infection before symptoms develop. Infected people, whether or not they are symptomatic, are often capable of transmitting the disease-causing organism to others.

    3. DISEASE. If, after exposure and infection, the invading organism overpowers the immune system, symptoms or disease will appear. Depending on the characteristics of the organism and your own immune system, the disease may be mild or severe.

SECTION III: THE SPECIAL CHARACTERISTICS OF THE AIDS VIRUS

A. The AIDS virus most typically attaches itself to a type of cell called a *helper T-cell* (also called a T4 cell). Helper T-cells are a part of the immune system's first line of defense against disease, and the AIDS virus infects and destroys them. These cells are called "T- cells" because they are produced by the thymus gland.

The AIDS virus will attach to other kinds of cells as well, including macrophages and monocytes, which are from different parts of the immune system.

B. The role of helper T-cells and suppressor T-cells in the functioning of the healthy immune system.

Simply explained, the helper T-cell is a "sentry" of the immune system that moves through the body looking for foreign organisms. If a helper T-cell bumps into a foreign cell or organism, it sends alarm signals to the spleen and lymph nodes. These organs, in turn, signal other helper T-cells in the body to reproduce quickly to fight the invader. The spleen and lymph nodes also produce other specialized cells that assist in the immune response. Antibodies are produced by the B-cells.

Once the infection is under control, another kind of cell, called a *suppressor T-cell,* calls off the attack. The "alarm" is turned off and the system returns to normal.

Our bodies have gone through this process thousands of times in our lives. Usually we are never aware of the invasion because the process works well so we do not become ill.

C. How the AIDS virus replicates.

When an AIDS virus enters the blood stream, it searches for a helper T-cell. The helper T-cell has a specific *receptor site* for the protein coating on the virus. The virus fits into the cell much like a puzzle piece. It will not fit cells that do not have this special receptor site.

The exact mechanisms of replication by the AIDS virus are not perfectly understood. Scientists do believe that once the virus successfully invades the helper T-cell, it lies silent within the cell. The only part of the immune system that can then recognize this virus within the living cell is another matched helper T-cell. When such a cell bumps into and attaches to the infected cell, the AIDS virus disables and invades it before it can send out an alarm. Then there are two viruses, in two separate cells. The AIDS virus can replicate very slowly through this cell-to-cell, "silent invasion" process.

Eventually, some other infection occurs. When the helper T-cells receive alarm signals to reproduce and fight the new infection, those cells infected with the AIDS virus do not produce more T-cells. The virus has taken over their reproductive mechanisms and uses them now to mass produce more *virus.* These new viruses are released into the blood stream. Each virus produced goes out in search of a helper T-cell of its own. In time, the cell originally invaded will be exploded by the mass of virus and die.

When the suppressor T-cell turns off the "alarm" this time, many more helper T-cells are infected with the AIDS virus, and the immune system is less effective than it was before. More and more sentries of the immune system are being silenced and destroyed before they can alert the body to invasion.

D. The effect of HIV infection on the immune system.

Usually our bodies have about twice as many helper T-cells as suppressor T- cells. In HIV infection, the helper T-cells are destroyed, and the ratio of helper to suppressor cells changes. It may even reverse. Then the smaller number of helper cells will recognize an infection and even start to mobilize a defense. But before there is any significant effect, the overpopulous suppressor cells call a halt to the process. The body is left without adequate defense against disease.

SECTION IV: SOME OF THE DISEASES SEEN IN HIV INFECTION

A. The kind of immunity affected by the AIDS virus is called *cell-mediated immunity*. The immune system has many different branches that defend against different kinds of invasions. Cell-mediated immunity responds to certain kinds of infections, and those are the diseases we see in people with AIDS. These diseases are called "opportunistic infections" because they take advantage of the "opportunity" to reproduce created by a damaged immune system.

B. People with HIV are affected by a wide variety of bacterial, fungal, viral and protozoal infections.

C. What some of the most common diseases are:

1. *Pneumocystis carinii* pneumonia (PCP).

PCP is a common infection found in people with AIDS. It is caused by a microscopic organism called *pneumocystic carinii* that is all around us. Most of us have been exposed to PCP in our lives and carry the organism in our bodies in a latent (inactive) state. Our helper T-cells recognize it and keep the parasite under control without our ever getting sick or being aware of its presence. For a person with AIDS, the latent PCP may be activated and the few helper T-cells available are unable to sound an effective general alarm before the suppressor T-cells stop the defensive reaction. The person develops fever, shortness of breath and difficulty breathing, and may need hospitalization. PCP can be treated, and many people with AIDS recover from the first case of PCP. But the underlying defect in the immune system remains, and some lung tissue will be permanently destroyed. In time, the person will probably develop further cases of PCP or other diseases, and with each subsequent illness he or she will be further weakened.

2. Kaposi's sarcoma (KS).

   KS is the skin lesion you may have heard about that is associated with AIDS. Originally it was seen in older (65+ years) men of Mediterranean or African descent. It appeared as flat, purplish lesions on the skin, which were occasionally disfiguring. But the disease was rarely lethal. In AIDS, KS appears primarily in young people in a very powerful form. The lesions may multiply quickly, can grow quite large, and can affect internal organs as well as the skin. People with AIDS can die of the effects of advanced KS.

   Usually KS is referred to as a cancer of the skin, though it is not actually a cancer.

3. Herpes simplex.

   Most of us have had cold sores at one time or another caused by the common herpes virus. Usually herpes appears on mucous membranes—the mouth, genitals, and possibly the eyes. These typical herpes infections are not a sign of a damaged immune system. People with HIV infection, however, can be affected by the same virus in a much more powerful fashion. The sores may appear on the skin of the buttocks or thighs, throughout the mouth and throat, or internally in the lungs or gastrointestinal tract. The herpes virus may infect the brain, causing neurologic problems like confusion or paralysis.

4. Herpes varicella-zoster.

   Most of us have also been affected by another herpes virus called herpes varicella-zoster. This virus causes chicken pox in children. The infected child develops pimple-like sores over his or her body, the immune system successfully fights the disease, and two weeks later the child feels fine. Antibodies to the virus usually keep the individual from developing further infections.

   In adults, herpes varicella-zoster causes shingles, a rash of small, very painful blisters on the skin that follows nerve pathways. Shingles may appear in people with other illnesses or people under a lot of stress. In people with HIV infection, this type of herpes infection is unusually severe and may disseminate over large areas of the body.

5. Other infections.

   A variety of other diseases and infections can show up in people with AIDS or HIV. These include non-Hodgkin's lymphoma (cancer), Mycobacterium avium intracellularis (bacterial), cytomegalovirus (viral), cryptococcus (fungal), candida (fungal), and others. In fact, the Centers for Disease Control lists a number of diseases diagnostic for AIDS (over 20). Many additional conditions and diseases, not diagnostic for AIDS but indicative of immune system suppression, are found in people all along the spectrum of HIV infection.

D. Other effects of the AIDS virus.

In addition to its effects on the immune system, the AIDS virus can also directly infect the brain. Some of the diseases that appear with a depressed immune system can cause neurologic damage (e.g., toxoplasmosis, disseminated herpes). In addition to this, however, even in the absence of these diseases, the virus can affect neurologic functioning. It may cause confusion, personality changes, clumsiness, difficulties with fine and gross motor coordination, forgetfulness, difficulties speaking or understanding others, etc.

SECTION V: THE FUTURE DIRECTION OF AIDS VIRAL RESEARCH

A. Learning more about the origins of the virus.

Scientists are trying to track the earliest known cases of AIDS. The AIDS virus may be a recent mutation of another virus, or until recently the virus may have resided in a geographically isolated group of people who had become immune to it over time.

Most researchers believe the virus originated in Africa. The theory generally accepted now is that the virus comes from African primates. Several species of monkeys carry viruses remarkably similar to the human AIDS virus. Most likely, through some natural chance mutation of this AIDS-like virus in monkeys, a new organism developed which was able to cross species and infect humans. In certain parts of Africa, these animals are eaten or kept as pets. Perhaps through ingestion of uncooked organs, or an accidental cut while preparing the carcass, or some other means, a human was first infected, and the disease has spread between humans since then.

Suggestions that the disease was passed from animals to humans through scratches or bites are not well-founded. There is no evidence that biting spreads AIDS between humans, and there is no basis for considering scratching as a means of transmission.

B. Treatment efforts:

1. Stopping or slowing the action of the virus on the immune system.

2. Building up the immune system.

3. Preventive treatments (prophylaxis) to keep people from developing specific HIV-related illnesses once they are infected. For example, there are now prophylactic treatments available which help people with AIDS or advanced HIV infection avoid PCP, *Pneumocystis carinii* pneumonia.

4. Developing better treatments for the diseases people with HIV infection do get.

5. Finding medications that will keep the virus from infecting the brain.
6. Developing treatments to keep a carrier from passing the virus on to others.
7. Vaccine.

C. AIDS research may help in the understanding of other diseases that involve the immune system.

1. Genetic immune deficiency problems (illnesses children might be born with, e.g., Wiskott-Aldrich, Severe Combined Immunodeficiency [SCID]).
2. Other acquired immune deficiency problems (organ transplants, people receiving cancer treatments, patients on steroid medications).
3. Cancer (where the immune system does not recognize a tumor or cannot effectively stop its growth).
4. Autoimmune disorders:
    a. Rheumatoid arthritis (the immune system attacks the tissues and bones around the joints, improperly identifying them as invaders).
    b. Systemic lupus erythematosus (the immune system destroys skin, kidneys, joints).
5. Allergies (the immune system responds unnecessarily to benign invaders like pollen, dust, certain foods, etc.).

Questions:

A. You can see that HIV research is important to medical science. What are some of the things that might interfere with the progress of this research?

1. Inadequate funding.
2. Poor understanding about the benefits of the research, so that legislators and the general public do not support funding.
3. People's negative emotional reactions to AIDS (because of fear, because they blame the disease on homosexuals or IV drug users), which cause them to withhold support for such research.
4. Competition among researchers, interfering with cooperative efforts.
5. Treatment trials involve human subjects and there are many ethical problems in such research. Researchers must take into consideration the possibility of

a treatment causing more damage than good, and balance this against the desperate need of people with HIV infection for successful treatments.

B. Imagine that this class was actually a group of legislators about to vote on funding AIDS research. What areas of research (as covered in Section 5, above) would you want to support? How would you convince others of your position?

Plan 7: Pursuing a Medical Mystery—The Story of HIV Disease

Target:

Biology, physiology, general science.
Classes enjoying discussion and interested in scientific strategies.

Purpose:

1. To describe some of the epidemiologic tools used to identify and describe a new disease, using HIV disease as a current and relevant example.

2. To communicate risk information for HIV, risk-reduction guidelines, and clarify that the AIDS virus is not spread by casual contact.

Objectives:

1. Students will have a basic understanding of the process of epidemiology.
2. Students will know basic information about HIV transmission.
3. Students will know risk-reduction guidelines for AIDS/HIV.

Format:

1. Lecture/discussion.
2. Test (optional).

Materials:

1. Test (optional).

Time:

1-3 full class sessions (at teacher's discretion).

Utilization:

Present the story of the early investigations of AIDS and then facilitate discussion of how some of the early questions in the AIDS epidemic were answered by epidemiologic methods. Conclude the class with a review of HIV risk and prevention information.

PLAN 7: PURSUING A MEDICAL MYSTERY—THE STORY OF HIV DISEASE

Method: Present the story of the early investigations of AIDS as outlined in sections I-IV. Section V offers several questions asked by researchers early in the epidemic, and how they were answered by epidemiologic method. Select as many of these examples as time allows for class discussion. Conclude the class with the review of HIV risk and prevention information in Section VI.

If lab work is part of your class curriculum, please review "Infection Control Guidelines for Lab Classes Working with Body Fluids," p. 147.

INTRODUCTION:

Most students have heard about AIDS. AIDS is a disease caused by a virus. The virus is called "HIV," human immunodeficiency virus.

A person infected with HIV is said to have "HIV infection." That person might look and feel perfectly healthy, might have mild symptoms, or might be very ill. Most people with HIV infection who are very ill will receive a diagnosis of AIDS.

Today we're going to look at the early days of the AIDS epidemic and talk about how scientists discovered this new disease, and then learned how it was transmitted and how to prevent transmission.

SECTION I: THE APPEARANCE OF THE DISEASE

A. In 1981, a perplexed physician diagnosed five presumably healthy young men in Los Angeles with *Pneumocystis carinii* pneumonia (PCP).

   1. PCP is a very serious disease seen only in people with depressed immune systems.

   2. Having a depressed immune system (being "immunocompromised" or "immune suppressed") indicates severe damage to the immune system.

B. Coincidentally, all five men were homosexuals.

C. The doctor reported these unusual cases to the Centers for Disease Control in Atlanta (CDC).

   1. The CDC is a national center, under the direction of the U.S. Public Health Service, that studies the distribution and incidence of disease in the United States and researches causes and cures.

   2. The CDC has the ability to require that certain diseases be reported to them when diagnosed.

D. The CDC published the report of the Los Angeles doctor in the June 5, 1981 issue of *Morbidity and Mortality Weekly Reports (MMWR)*, a widely-read publication on the occurrence of diseases in the U.S. They included the suspicion in these cases that there might be a connection between sexual contacts and the suppression of the immune system necessary for a person to be diagnosed with PCP.

E. At the same time, 26 cases of Kaposi's sarcoma (KS) were reported among homosexual men in New York and California.

   1. KS is a skin disease usually seen in a nonmalignant form among older men of Mediterranean or African descent.

   2. At the time of this 1981 report, eight of the 26 men diagnosed had died—a most unusual outcome with KS.

   3. The new cases of KS seemed related to immune suppression.

SECTION II: STARTING SURVEILLANCE ON AIDS

A. *Disease surveillance* is a way of studying a disease by seeing how many cases there are, what kinds of people are getting the disease, where these people live, what kinds of things they might have in common, how they are affected by the disease, whether they live or die.

   1. Why use surveillance?

      a. To see how serious a disease is by measuring how many people get it, how seriously affected they are, whether they live or die.

      b. To try to determine causes of a disease by looking for commonalities among those affected.

      c. To understand the natural history of a disease by watching its progression in a large number of people.

B. The CDC began systematic surveillance of individuals with KS or PCP in June, 1981.

C. CDC looked for others who might be affected by the same disease.

   1. Since it was a new disease, they needed to tell physicians what to look for. They had to come up with a definition.

2. Definition first used: KS or other life-threatening opportunistic infections in previously healthy people between the ages of 15 and 60.

3. Diagnoses of the disease were required to be reported to the CDC.

SECTION III: THE DISEASE SPREADS

A. In fall 1981, new cases of the disease were reported among male and female heterosexuals who used IV drugs.

B. Reports were made of hemophiliacs with AIDS.

   1. Hemophilia is a disorder in which a person's blood is unable to clot after a wound. It is treated by replacing an element missing in the person's blood, called "Factor VIII." Factor VIII is manufactured from donated blood.

C. Researchers began to suspect the disease was transmitted through blood products.

D. Several recent Haitian immigrants were also reported with the disease.

E. Some babies were being born with hard-to-explain immunodeficiencies, and were suspected of having the disease.

F. The incidence of the disease continued to increase.

SECTION IV: EPIDEMIOLOGY—ANSWERING QUESTIONS ABOUT AIDS

A. The new disease was eventually called AIDS—Acquired Immune Deficiency Syndrome. (The problem with the immune system is not a genetic one, but an acquired one.)

B. The definition was updated: the presence of KS, PCP or other opportunistic infection in a person who has no known underlying cause for immunosuppression.

C. There was no test available to prove infection. There were many questions about transmission, cause, course of the disease, how many people would ultimately be infected, how to prevent infection, etc., which needed to be answered. Questions were raised and strategies planned to find the answers.

Today, we know that AIDS is caused by a virus and we have identified that virus. We can perform a simple test to check for the antibody to the AIDS virus. A positive antibody test means that antibody is present, and that the individual has been infected with HIV, the AIDS virus. Persons with positive antibody tests are capable of passing the virus on to others in unsafe sexual exchanges or IV drug use.

The virus that causes AIDS was not discovered until 1983-1984. The antibody test was not available until 1985. Before this time, we relied on studies of the health and sexual practices, lifestyles, and health histories of those who had AIDS to answer many of our questions. We also looked at the distribution of the disease and compared persons with an AIDS diagnosis to persons with no AIDS diagnosis.

D. This sort of study of the distribution and causes of diseases is called "epidemiology." Surveillance is one of the tools of epidemiology.

SECTION V: DISCUSSION—QUESTIONS, STRATEGIES AND ANSWERS

Present one or more of the following questions to the class and discuss possible strategies to find the answers. Then clarify what methods were actually used in the investigations ("Strategies"), the results of the investigations ("Answers"), and how accurate those results have remained as our skills and tools for investigation improved ("Update").

Question 1: *How was AIDS being transmitted among gay men? Was it indeed sexually transmitted? Were certain sexual activities more likely to transmit the disease than others?*

Strategies: Get in-depth sexual histories from those diagnosed with the disease. Compare gay men diagnosed with AIDS with those who did not have the disease to look for differences in sexual practices. Compare the sexual practices of gay men with those of other people.

Answers: Some of the men originally diagnosed with AIDS in Los Angeles and New York were acquainted and had been past sexual partners. This strongly supported the possibility of sexual transmission.

The gay men first diagnosed with AIDS had certain sexual experiences in common, most notably anal sex with multiple partners. Gay men who did not have sex that involved an exchange of semen were not diagnosed with the disease.

An early comparison of diagnosed and nondiagnosed gay men showed that those with AIDS had higher numbers of sexual partners per year.

Update: Viral studies have now shown the presence of the AIDS virus in semen. We have further verification, through the increased numbers of gay men affected, that those who contract AIDS have a history of sexual contact involving an exchange of semen. Antibody studies have tracked a few individuals who were antibody negative (uninfected) up to a time when they engaged in unsafe sex, at which point they became antibody positive (infected). Infection via sexual activity is proven.

We now know that it is not necessary to have multiple partners to become infected with the AIDS virus. A one-time unsafe exposure may be enough to cause infection.

Question 2: *Could AIDS be passed through casual contact?*

Strategies: Look at large numbers of people who had casual contact with people with AIDS—nonsexual friends, family members, medical personnel. See if any of them came down with the disease.

Look at those diagnosed with the disease. Were there any cases of people developing AIDS whose only risk was casual contact?

Answers: Studies of friends, family members, and medical personnel showed no transmission through casual contact.

There were unanswered questions about the risks of some of those affected, but in no case were researchers able to verify casual transmission of AIDS.

Update: These studies are consistent with those ongoing today. There continue to be no documented cases of casual contact transmission. With our more sophisticated understanding of the virus now, we can be further reassured that AIDS is transmitted only through intimate sexual contact involving an exchange of blood, semen, vaginal secretions (and possibly urine and feces), or in other cases such as IV drug use where there is an exchange of blood.

Question 3: *Just how serious was this disease likely to be? In the beginning, only a few people were diagnosed as having AIDS. Would the number of cases increase slowly or dramatically?*

Strategies: Keep count of all the cases reported. See if the numbers were growing. If there was an increase in the number of cases each month (or every six months), plot a graph to make a projection of the numbers of cases expected in the future.

Answers: Ongoing counts of AIDS cases showed a definite increase in the number of cases. After the disease was identified in 1981, researchers tracked people who had shown the disease as early as 1979. Between the second half of 1979 and the first half of 1983, the number of new cases reported was doubling about every six months. Future projections of incidence were staggering—using this formula, the 1,118 cases reported in the first six months of 1983 suggested there would be over 76,000 new cases by the first six months of 1986, and over 150,000 cases overall.

Update: AIDS has indeed affected great numbers of people. The increase in rate of infection has slowed since the time of the earliest studies, but the reports are still alarming. The first 50,000 cases of AIDS were reported between 1981 and 1987 (six years). The second 50,000 cases were reported between December 1987 and July 1989 (20 months). People continue to be diagnosed with AIDS, and by the time this edition is published, there will have been 50,000 additional cases reported.

Question 4: *AIDS was being transmitted through infected blood donated for blood transfusions. How was the blood supply to be made safe?*

Strategies: Gay men with multiple sex partners were asked not to donate blood. There was no test for the AIDS virus, but the blood of those diagnosed with AIDS could be examined for other elements for which a test might exist. If there were such elements, blood could be screened by whatever test already existed.

Answers: Studies showed that most people with AIDS also had antibodies to hepatitis-B, a disease also passed through blood exchange and intimate sexual contact. An antibody test existed for hepatitis-B, and its use was instituted at blood banks. Combined with voluntary screening by gay men, 90% of AIDS- infected blood was successfully removed from the blood supply.

Update: The development of the AIDS antibody test in 1985 has further improved the safety of the blood supply. Almost all infected blood is now able to be screened out. The chance of an infected unit of blood passing through the screening process is estimated to be about 1 in 100,000. (Actually, the National Academy of Sciences gives a range of estimates, presenting the most pessimistic risk as 1 in 20,000, the most optimistic as 1 in 1,333,000, and the baseline as 1 in 99,000.) Though the risk of AIDS via transfusion still remains, it is a much smaller risk than the risk of not accepting a transfusion in cases in which it is medically necessary to do so.

Question 5: *How long is the incubation period for the disease? It seemed it might be several months at the outset of investigations. This was considered quite lengthy.*

Strategies: It was difficult to measure incubation for a sexually transmitted disease with a long incubation rate. Often people had had several sexual partners and many possible exposures in any six-month period of time.

People who developed AIDS after transfusions were easier to measure for incubation, because usually there was only one time when blood was transfused, and that time was recorded in medical records.

Answers: Tracking transfusion-related AIDS cases gave definite answers, but the disease kept showing longer and longer periods of incubation. Incubations of four or more years were proven in this method.

Update: With the advent of the antibody test, stored blood serum samples could be tested for infection with the AIDS virus. Several thousand gay men donated blood samples in 1978 and 1979 for use in the development of a vaccine for hepatitis-B. Hundreds of those men are under study today, and subsequent blood samples have been collected and studied. We now know that some men who showed AIDS infection in their 1978 samples of blood have developed the disease as much as ten years later. In fact, after ten years, about half of the men in these studies still do not have a diagnosis of AIDS (though most do have symptoms of some sort).

Question 6: *Why were newborns developing AIDS?*

Strategies: Look for risk factors for the newborns. Had they received blood transfusions? Was it possible that the mothers were infected and had passed the disease to their babies before or shortly after birth?

Answers: Babies diagnosed with AIDS did show risk factors. Many had received transfusions in the newborn period. Others were children of mothers who used IV drugs. A few were children of Haitian women, though the risk for Haitians was not well understood at the time (see #7, below). It seemed probable that the children were infected with AIDS before birth, incubating the disease for a short period of time and then becoming ill, usually in the first year of life.

Update: This is further verified by current studies. Perhaps 30-50% of newborns born to mothers who carry the AIDS virus are themselves infected. Most of these infants will develop serious illness within one year, but in a few cases the children are still well at four or five years.

Question 7: *Early in the AIDS epidemic, many Haitians were being diagnosed with AIDS. The CDC set up a specific risk category for Haitians because it could not determine how they were becomng infected. When interviewed by US scientists, Haitians denied any standard risk factors. How could researchers figure out how Haitians were becoming infected?*

Strategies: Most Haitians with AIDS denied homosexuality or IV drug use. It was necessary to look for other possible courses of transmission as well as consider the possibility that the reporting by those diagnosed was inaccurate. Most of the initial questioning was done by Caucasian researchers unfamiliar with Haitian culture. Perhaps a Haitian researcher could get different answers.

Answers: When those familiar with Haitian culture were brought into the investigation, several important points came to light. One was that there was a strong cultural judgment against homosexuality, so that many gay Haitians denied their sexual orientation. Another was the fact that in Haiti, a very poor country, some men who considered themselves heterosexual would act as male prostitutes for gay tourists in the cities. Because this was work performed to earn money, the men did not consider it "homosexual activity." Further, a man who was the active rather than receptive partner in anal sex would not, in Haiti, consider himself a homosexual. Finally, many Haitians used the services of folk healers who administered injections of folk remedies with needles that were not properly sterilized, hence there had evidently been blood transmission of HIV.

This collection of information seemed to answer many of the questions about Haitian risk.

Update: Now that we understand the possibilities of heterosexual transmission, it is evident as well that many of the HIV infections among Haitians were passed through heterosexual contact.

Question 8: *Gay men diagnosed with AIDS sometimes had sexual partners who seemed perfectly healthy. Was there a carrier state for the disease, in which people appeared healthy but could pass the disease to others?*

Strategies: Monitor the partners of people with AIDS to determine whether they eventually developed the disease. Look at the previous and subsequent partners of these men to see if they developed AIDS.

Answers: This was a difficult study to pursue because of the length of incubation and the difficulty of determining who a carrier might be in a population in which many people have multiple sexual partners. It was true that sexual partners of people with AIDS often developed the disease at a later date. Generally, the studies seemed to suggest there was a healthy carrier state, or a period during the incubation of the disease in which a person appeared normal but could infect others.

Update: Again, antibody and viral studies have clarified this question. There is no longer any doubt about the carrier state for AIDS. Many people infected with the virus look quite healthy and can still transmit the virus to others.

Question 9: *Were the heterosexual partners of IV drug users at risk, even if they did not themselves use IV drugs?*

Strategies: Monitor the sexual partners of IV drug users diagnosed with AIDS to see if they develop the disease.

Answers: AIDS evidently could be passed heterosexually between IV drug users and their nonusing partners. Some men and women with no other risk than sexual contact with an IV drug user developed AIDS.

Update: This is further verified by antibody studies of IV drug users and their sexual partners. Depending on the study, anywhere from 10% to 70% of nonusing partners may be infected.

Question 10: *Were heterosexuals generally at risk to contract the disease, if they did not have a history of IV drug use or homosexuality?*

Strategies: Look at all the people diagnosed with AIDS and see if heterosexual contact was the only possible risk for any of them.

Answers: The disease spread most rapidly among IV drug users and gay men, but it appeared in some places among heterosexuals without other known risk factors. There were cases of AIDS passing from men to women, as well as those showing transmission from women to men. Heterosexuals were also susceptible to the disease.

Update: This trend continues. In the U.S., sexually active heterosexuals with no other risk factor account for a small but growing number of AIDS cases.

SECTION VI: THE FUTURE DIRECTION OF AIDS EPIDEMIOLOGY

A. New tools are now available to help scientists and physicians study HIV infection and AIDS more accurately. Some of these are still experimental. For example, there are some rapid antibody tests which are being developed in an effort to give people results of their tests more quickly, or for use in emergency situations. These tests have not been accurate enough for general use so far.

Another interesting experimental assay is the PCR, polymerase chain reaction, which actually looks for pieces of viral DNA (rather than HIV antibody) to determine whether or not an individual is infected. This test must also establish better data on accuracy before it graduates from its experimental status.

There are also a number of "markers" that can be identified by running blood tests on HIV infected individuals. The markers give information about how strong or weak a person's immune system is. Certain treatments are now recommended for people with specific findings in such tests, and experimental treatments are more available to individuals who can show that their immune systems are badly weakened by HIV.

These and other new developments will help epidemologists study HIV more precisely and comprehensively in the future.

B. Epidemiological studies will continue and will look especially at the following:

1. To determine the origins of the virus. If we know where the virus originated and can see it in earlier forms, we may find clues to treatment or the development of a vaccine.
2. To monitor changes in people being affected by AIDS. Increased educational outreach to IV drug users and sexually active heterosexuals is being implemented because changes in the pattern of infection suggest growing risk in these groups.
3. To study whether treatments work: comparing those receiving a treatment with those receiving a placebo.
4. To test a vaccine if one is successfully developed, especially to see if it is effective and safe before it is widely used.
5. To monitor the different ways the disease affects different people (for example, fewer people are now being diagnosed with KS than was originally the case; and KS rarely affects anyone with AIDS who is not also a gay man).

6. To monitor people who have survived with an AIDS diagnosis for several years, to discover how they have managed to battle this usually fatal disease so successfully.

SECTION VII: REVIEW

A. Since so much effort has gone into understanding AIDS, we review here the information discovered that might be important in the lives of students.

1. *Anyone* can get AIDS or HIV infection. It is not a gay disease. It can pass from men to men, from men to women, from women to men, and from women to women.

2. You can't tell just by looking at someone whether he or she has been infected with HIV.

3. You can prevent infection with HIV by following simple guidelines:

    a. Don't use IV drugs. If you must use drugs, don't *ever* share needles with anyone! (We also recommend that you do not share needles for tattooing or piercing ears because of the possible risk of blood exchange.)

    b. Don't engage in sexual activity. Be abstinent.

    c. If you do choose to be sexually active, follow safer sex guidelines at all times.This means don't exchange blood, semen or vaginal secretions in any sexual activity. Condoms, properly used, help prevent infection with the AIDS virus. (For a specific list of safe and unsafe sexual activities, see p. 23.)

4. Testing of donated blood has made the blood supply quite safe, so transfusion-related HIV infection will be very rare in the future.

5. Blood products for people with hemophilia are now heat-treated to kill the AIDS virus, so hemophiliacs are no longer exposed to HIV in medical treatment.

Supplement: How the AIDS Virus Infects the Immune System

This supplement is provided to assist teachers in explaining the process of infection by the AIDS virus to classes interested in this information. It describes in a graphic and simple manner the effects of HIV on the immune system.

(Diagrams 2-A and 2-B [p. 98] are available as teaching aids for this supplement.)

A. The immune system is a very complicated system through which the body defends itself from invasion by diseases and infection. AIDS acts by destroying the body's immune system and opening the body up to certain infections that would normally be stopped by the immune system.

Two of the infections which are seen in people with AIDS are *Pneumocystis carinii* pneumonia (PCP) and Kaposi's sarcoma (KS). People with healthy immune systems *never* get these diseases. (Other conditions besides AIDS can damage the immune system; in such cases, these diseases might also appear.)

B. **The Healthy Immune System** (Diagram 2-A):

The different parts of the immune system work together to protect the body. The body can fight certain diseases *all* the time. It can fight other diseases *most* of the time.

In this diagram, you can see the healthy immune system successfully fighting PCP and KS. Some cases of flu are stopped, but occasionally a flu or cold might take hold.

The part of the immune system shown by dots in the diagram is the *helper T- cells.* They act as sentries, alerting the body to invasion by diseases like PCP and KS.

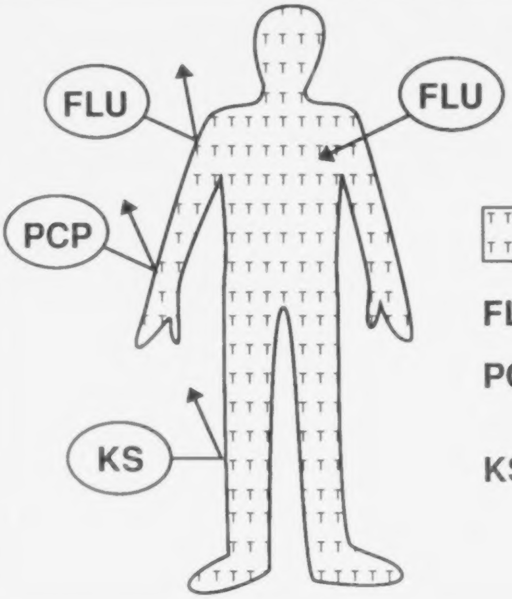
C. **The Immune System Infected with AIDS** (Diagram 2-B):

The AIDS virus destroys helper T-cells. You can see that the person with AIDS has very few helper T-cells. The body can no longer fight off diseases like PCP or KS. It may be able to fight off infections like flu or cold.

D. Another way to think about this:

Think of the body as a castle, with defending armies inside (the immune system) and attacking armies outside (diseases). A spy (AIDS virus) comes into the castle and destroys all the sentries (the helper T-cells) of the defending armies. When diseases attack, no sentries are left to warn the defending armies. The troops are not alerted to the invasion, and the immune system is easily overwhelmed by the attackers.

2-A: THE HEALTHY IMMUNE SYSTEM



The body's immune system can *always* fight off certain diseases, including PCP and KS. It can usually, but not always, fight common colds or flu.

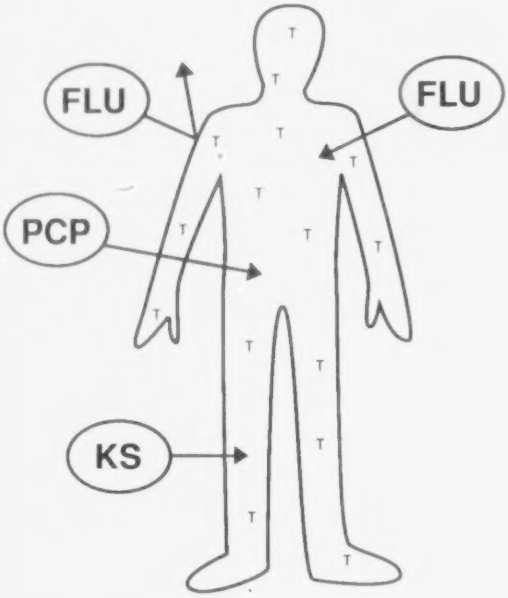
T T T T T T T T T T Helper T-cells: special cells in the immune system which alert the body to invasion by diseases.

FLU– Common viral colds or flus.

PCP– Pneumocystis carinii pneumonia: a disease seen in some people with AIDS.

KS– Kaposi's sarcoma: also seen in some people with AIDS.

2-B: THE IMMUNE SYSTEM INFECTED WITH AIDS



The AIDS virus has destroyed most of the helper T-cells.

The body cannot fight off diseases like PCP and KS. It can sometimes, but not always, fight common colds and flu.

TEACHING MATERIALS

Introduction to Teaching Materials

The materials provided in this curriculum are optional additions to the class lectures and discussions. They can be assigned as homework or filled out in a subsequent class session. There are six worksheets and an objective test included.

1. **Personal Opinions About AIDS**

   This is a preclass worksheet. Students are asked to spend a few minutes filling out the worksheet at the beginning of class. Since the worksheet asks for opinions, there are no right or wrong answers. Students should not put their names on the worksheet. At the end of the class, the students are asked to look over their answers and, if they feel differently about any of them, change them. Then they are instructed to turn over the sheet and write on the back the most important thing they learned in the class.

2. **People's Responses to AIDS/HIV**

   This worksheet allows students to consider which responses to the AIDS/HIV epidemic they consider positive, and which they consider negative. It is a simple exercise, appropriate for all high school levels.

3. **Press Reports on People's Responses to AIDS/HIV**

   Worksheet 3 involves an evaluation of responses to AIDS or HIV reported in the press. It requires the student to find an article about AIDS or HIV in a newspaper or magazine. As an alternative the teacher could give students a copy of a particularly useful article and have them answer the questions about that article specifically. This is also a fairly simple exercise, appropriate for all high school levels.

4. **Finding Answers to Questions About AIDS/HIV**

   This worksheet relieves the teacher from the responsibility of knowing everything there is to know about AIDS! Any unanswered questions students have can be pursued with the help of this worksheet. This also allows students to pursue questions they might be hesitant to raise in class. The teacher should check for the name and phone number of a local AIDS information switchboard, or use the national information number listed on page 155, and enter this on the worksheet before making copies for students. Resource numbers *do* change sometimes, so be sure to check the number before handing out the exercise.

   We recommend that this worksheet be handed out in all classes, even as an optional exercise, so students can take the information number home and use it privately if they wish.

5. Setting Policy About AIDS/HIV

Worksheet 5 involves essay answers to some complex and challenging questions about HIV related policies. It is a more difficult worksheet than the previous four, will take more time to complete, and is appropriate for students accustomed to critical and analytic thinking and writing.

6. An AIDS Education Plan

The task of Worksheet 6 is also challenging. If preferred, it could be done as a class or small group project rather than individually. The results of the work might actually be shared with school administrators, school board, etc., as a way of involving students in the issue.

Test

The 10-question objective test covers HIV transmission and prevention, as well as some basic information about the disease. It is appropriate in any class needing measurement of class comprehension for evaluation of students or teachers, or for grading purposes. The test can also be given as a pretest, then given again after the unit, as a way to show students what they have learned.

Worksheet 1
Personal Opinions About AIDS

These are personal opinion questions. There are no wrong answers! Please answer as honestly as you can. Do not put your name on this paper.

1. I think people with AIDS ______________________________

2. Learning about AIDS in school is:

   a. A good idea. Really important.

   b. A bad idea. A waste of time.

   c. Other ______________________________

3. Is there any way the AIDS epidemic has affected you, or might affect you in the future?

Worksheet 2
People's Responses to AIDS/HIV

1. Think of someone you know or someone you have heard of who has responded to the AIDS epidemic in a way you feel is positive and helpful.

What has his or her response to the AIDS epidemic been?

Why do you think this is a positive and helpful response?

2. Think of someone you know or someone you have heard of who has responded to the AIDS epidemic in a way you feel is negative and not helpful.

What has his or her response to the AIDS epidemic been?

Why do you think this response is negative and not helpful?

Worksheet 3
Press Reports on People's Responses to AIDS/HIV

Find an article about AIDS or HIV in a newspaper or magazine that talks, at least in part, about people. (Articles reporting only research news may not mention anything about people, and would not be useful for this exercise.) Attach the article to this worksheet and answer the following questions:

1. Who are the people (or the person, or the groups) mentioned in this article?

2. How are these people (or this person, or these groups) responding to the AIDS/HIV epidemic?

3. How do you feel about what these people (this person) are doing? Do you think their responses are positive? Negative? Do you agree or disagree with what they are doing? Why?

Worksheet 4
Finding Answers to Questions About AIDS/HIV

1. Think of a question you have about AIDS or HIV that has not been answered in the class. Write the question:

2. The AIDS information number is ______________________. Call this number and ask your question. Write the answer to the question:

3. What was the person who answered your call like? Helpful? Clear? Hard to understand?

4. Would you call the switchboard again if you had another question about AIDS or HIV?
   _____ Yes _____ No
   Why or why not?

Worksheet 5
Setting Policy About AIDS/HIV

Four fictional situations in which someone must respond in some way to an HIV-related issue are given below. Choose one of these situations and write a response, keeping in mind the need to protect the civil rights of all parties involved.

1. You are the principal of an elementary school of 300 students. It is July, and you have just been informed that one of the sixth graders returning to school in September has HIV infection. What will you do?

2. You are the Director of Parks and Recreation for a large city. A group of people with AIDS has requested use of one of the city's public pools for a special event. This permission is often granted to different community organizations. However, a newspaper prints a report of this particular request, and a huge controversy erupts. Many citizens claim this organization does not have the right to use the pool and endanger the health of others. What will you do?

3. You are the Director of Admissions for a prestigious medical school. You have an application from a man which was reviewed by your staff. The man was accepted into the school, although his admission letter has not yet been mailed. One of your employees says he has personal knowledge that this man has AIDS. You know if this is true, the man is not likely to be well enough to finish his training. Placements in your school are few, and training is very costly. What will you do?

4. You are a counselor at a social service agency. A woman comes in to meet with you. She has a history of IV drug use, but has not used drugs for two years. She has been ill, and as she describes her symptoms you begin to suspect she may have HIV infection. She tells you she is trying to get pregnant and that she and her husband are very excited about starting a family together. What will you do?

Worksheet 6
An AIDS Education Plan

Imagine that the principal of this school has hired you to make sure that all the students in this school know about AIDS—what it is, how it is transmitted, and how it can be prevented. Write a proposal explaining to the principal how you think this can best be done.

Test

1. The virus which causes AIDS is called:

   a. Immune system virus 3
   b. HIV - human immunodeficiency virus
   c. ARC virus

2. Which of the following is a way the AIDS virus can be transmitted?

   a. Having sexual intercourse with an infected partner
   b. Donating blood
   c. Using public toilets

3. The *best* way to protect yourself from infection with the AIDS virus is:

   a. Don't have sexual intercourse with a person unless he or she looks healthy.
   b. Don't have sexual intercourse with someone from another school.
   c. Abstain from sexual intercourse and don't ever share needles with anyone for any purpose.

4. Sharing needles for any reason is always dangerous. People have shared needles or other equipment for the following purposes:

   a. Tattooing
   b. Steroid injections
   c. Use of non-prescription drugs
   d. Use of prescription drugs
   e. Ear piercing
   f. All of the above

5. You cannot get the AIDS virus from:

   a. Mosquito bites
   b. Donating blood
   c. Sharing drinking cups
   d. All of the above

6. You can tell just by looking at someone whether he or she is infected with the AIDS virus.

   True False

7. Condoms, when properly used, can help protect you from infection with the AIDS virus.

   True False

8. A pregnant woman infected with the AIDS virus might pass the infection to her unborn fetus.

   True False

9. There is a medical cure for AIDS, so if someone is infected with the AIDS virus, he/she will probably never get sick.

   True False

10. Teenagers have stronger immune systems than young children or adults, and they do not ever get AIDS. Teenagers do not need to worry about AIDS until they are 21 or older.

    True False

Answers:

1 - B
2 - B
3 - C
4 - F
5 - D
6 - F
7 - T
8 - T
9 - F
10 - F

Endnote: What's Next in AIDS Education for Teens?

A HISTORY

In 1984, I was hired by the UCSF AIDS Health Project to help carry out an AIDS prevention program among teenagers in San Francisco. At that time, we knew of no teenagers in the city who had AIDS, and had heard anecdotally of only a few such cases in the nation, probably young persons with hemophilia. What sort of prevention program, we wondered, should be planned?

We decided that there were two groups of teens who were truly at risk for AIDS: the first was the street youth, some gay and some heterosexual, who populated our Polk Street and Tenderloin neighborhoods. These young men often prostituted for a living and many were involved in intravenous drug use. The second was the young gay males who were still in high school and who, we reasoned, were likely to put themselves at risk in the future.

Carrying out some of the earliest AIDS prevention efforts with teenagers, we went directly to the street youth. We met them on the streets and at agencies that helped them. We facilitated discussion groups, handed out condoms, talked to them privately, helped them get medical care, put up stickers all over the neighborhood ("Don't Die Young—Learn the facts about AIDS now!"). We did our best to *inform* them, to help them increase their knowledge about AIDS.

The gay youth in school were a harder group to reach. Since this is a group usually very much in the closet, we decided to carry out a general education program for all high school students in the city. Instead of going into a school and saying, "If you're gay, come and talk to us at lunchtime about AIDS" (we knew no one would come), we thought we should go to every class in San Francisco and say, "This disease is spread among gay men and IV drug users, and if you aren't gay and don't use IV drugs, you probably don't need to worry." Then we would hand out brochures with referral numbers to every student, so the gay youth could give us a call later and get the rest of the information.

What naive thinking! This was one instance where difficulties getting a new program in the schools were a blessing for awhile. The school health officer in San Francisco wasn't about to let us take up an hour of time in their already-full family life curriculum to discuss a disease that had affected only four teenagers in the entire country. She wanted facts, figures, rationales. We had to go and get them. We carried out our research and thought through our ideas. We began to hear more about heterosexual transmission of AIDS, of AIDS among IV drug users and teenagers. It became clear that we needed to talk to all teenagers, gay or heterosexual, sexually active or abstinent, whether they were users of drugs and alcohol or not, about ways AIDS could be transmitted, and how it could be prevented.

CHANGING BEHAVIORS

We have made progress in our AIDS education efforts for teenagers. AIDS is no longer simply a local issue in San Francisco and New York City. Educators across the country have developed curricula and programs to teach young people about AIDS. Surveys of knowledge, attitudes and behaviors have been carried out in a variety of settings. Creative and thoughtful materials have been produced and are being utilized now with young people throughout the nation.

I can tell you honestly, though, I am still frustrated. I am frustrated because after all these years what we've really found out is we can change *knowledge* easily enough, and we can change *attitudes* fairly easily. We can change *beliefs* with a little more effort still. But we have had very little success changing *behaviors*, which is really the bottom line in AIDS prevention. If we can't get people to change high risk behaviors, we can't prevent the spread of the epidemic.

THE DATA

In an often-cited study of 860 Massachusetts teenagers (Strunin and Hingson, 1987), 92% of the sample *knew* that AIDS could be transmitted by heterosexual intercourse. Seventy percent reported being sexually active, but only 15% of the sexually active youth reported taking steps to protect themselves from AIDS. Further, only *20%* of those who had taken such steps were using measures that might be effective. That means that fewer than 20 of the 860 teenagers were following reasonable guidelines to prevent AIDS, even though 790 of them knew of the risks!

The data collected by Strunin and Hingson resonates with findings by other researchers as well. For example:

Kegeles, Adler and Irwin (1989) reported that sexually active adolescents in San Francisco who *believed* that condoms could protect them from AIDS, and who believed that AIDS was a real danger to them, were not more likely to use condoms than those who did not have those beliefs.

The Centers for Disease Control (1988), reporting on surveys of thousands of high school students throughout the nation, found that students were relatively well informed about how AIDS/HIV is transmitted (83.8% to 90.4% knew that HIV is transmitted by sharing needles, and 88.3% to 98.1% knew that HIV is transmitted through sexual intercourse). The behavior survey, however, showed rates of IV drug use ("have ever injected drugs") among the students ranging from 2.8% to 6.3%, and rates of sexual intercourse ("have ever had sexual intercourse") ranged from 28.6% to 76.4%.

Keller, et al. (1988) similarly report high levels of AIDS specific knowledge among 73 adolescent visitors to a medical clinic in New Jersey, a state which has an extraordinarily high rate of HIV infection. However, over two thirds of their sample reported sexual activity without correct use of condoms, with partners whose sexual histories were unknown.

WHERE DO WE GO NEXT?

Naturally, then, we can feel some frustration with AIDS education programs that primarily seek to give students knowledge, explore their attitudes, and affect their beliefs so they are more resonant with our information about AIDS prevention. *Teaching AIDS* is exactly this kind of curriculum, so you can go ahead and feel some frustration with the materials here. There is no indication that teaching students a lesson from *Teaching AIDS* will lead them to change unsafe behaviors or maintain safer ones.

The solution will not come from a better AIDS curriculum. It will come from *a better health education program.*

There are some common threads in all of our health education efforts. What do we want for young people? Most health educators want similar things:

- That teenagers do not smoke.
- That they do not drink, and that they never drink and drive. That they do not ride in cars driven by someone else who has been drinking.
- That they wear seatbelts when driving or riding in cars.
- That they do not use recreational drugs.
- That they can protect themselves from sexual assault and sexual victimization.
- That they postpone sexual intercourse. If they do become sexually active, that they use birth control properly and responsibly.
- That they do not contract sexually transmitted diseases. That they do not put themselves at risk for HIV.
- That they eat a balanced diet, and get enough exercise.
- That they feel positively about themselves, their families and their communities. That they have high self-esteem and believe in themselves.

And the wonderful and often overlooked part of these wishes for our young people is that a basic set of *skills* will help them choose the kinds of behaviors that will support all of these options. What skills do they need? The following list (adapted from Fetro, 1991) is a good framework:

- Skills to develop and enhance self-esteem.
- Decision making skills, so they can understand what they want for themselves.
- Skills to communicate well with others.
- Assertiveness skills so they are confident enough to state their wishes.
- Refusal skills, so they know how to say "no" and how to resist the pressure of peers.
- Coping skills, to help them deal with the inevitable struggles of their lives without turning to drugs, alcohol or desperate attempts to be accepted by peers.
- The ability to set and achieve goals.

Two important keys in helping young people learn these skills are peer programs and parent involvement. Teenagers are deeply affected by how they perceive their peers to believe and behave. They are also strongly influenced by their parents, a fact often overlooked in health education program planning.

RECOMMENDATIONS

Educators must continue to teach about AIDS, and to use their best talents and skills, along with the best materials they can find, to do so. Messages about HIV transmission and prevention need to be offered to young people repeatedly and in several different settings over the course of their school career.

Additionally, however, I hope you will do everything you can to support the development of a comprehensive school health program which emphasizes *skills building* as its primary goal. Such programs can begin in the earliest grades, and can be applied over a broad range of topic areas. The refusal skills a third grader learns in a lesson about stealing ("I'm not going to steal candy just because my friend does") will relate very directly to the refusal skills that same child needs two years later to turn down an offer to smoke marijuana, or two years after that to refuse pressure to engage in sexual intercourse. The decision-making and assertiveness skills built up over a school career can strengthen the resolve of an 18 year old woman who is facing the dilemma of whether to insist her boyfriend use condoms, thereby risking the relationship (which, if she has low self-esteem, may represent her only sense of self-identify), or go along with whatever he asks so she can feel secure in his affections.

We *can* be successful in our efforts to help children and adolescents make healthy choices for themselves. But we can't do so with information alone. My final wish, then, is that educators bring skills-building into their curricula, not just as they relate to HIV, but in all the important issues young people need to learn about.

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BACKGROUND MATERIALS

Lingering Doubts About Casual Transmission

We believe that students are best served by clear and unambiguous information about AIDS and HIV. It is most useful, therefore, if we can agree about the major facts, and teachers can present the material with confidence. However, a concern we hear fairly often is the possibility that HIV might be transmitted by casual contact. In all our materials, we insist that it is not, but if a teacher disagrees with this, how is he or she to teach the curriculum?

We offer here some of the arguments for and against casual transmission. We hope this will clarify the issue further.

"There is so much we don't know about AIDS. How can we be sure of anything?"

Actually, we know a great deal about AIDS. We know it is caused by a virus, and we know quite a bit about the structure of this virus. We understand how the virus attacks the immune system, and we have seen that it is fragile and dies easily outside the human body. We are familiar now with the progression of the disease and the range of illnesses that appear in infected persons. From a variety of studies, we understand that HIV is transmitted only in circumstances where blood is exchanged, or where there is intimate sexual contact involving an exchange of blood, semen, or vaginal secretions. What we do not know is how to stop the progress of the disease, how to cure it, or how to vaccinate against it.

"The incubation period for AIDS is so long. How can you be sure a lot of people who have had casual contact with persons with AIDS are not in that period of incubation? The disease could appear years from now."

The incubation period for AIDS is long—often five years or more. However, the length of time between an infection and the development of antibodies is fairly short, usually taking only two to twelve weeks. We can easily test for the presence of HIV antibodies.

Antibody studies have been performed in different situations where people have had casual contact with someone who has AIDS or HIV infection. Among family members, including parents, aunts and uncles, older and younger siblings, and so forth, there has never been a case of HIV being passed, except where there has been unsafe contact (unsafe sexual activities, sharing of needles).

Studies have been done in residential settings where people with HIV live with others, and again there has never been an instance of casual transmission.

Finally, many studies have been done of health care workers. These are individuals who may work closely with people with HIV, performing exams, cleaning their linen, giving them shots, disposing of body wastes. Disturbingly, there have been a few instances of health care workers becoming infected with HIV, but in all of these cases there has been some event that explains the transmission.

In most of these circumstances, a worker has suffered an accidental needlestick from a needle that has been used on someone with HIV. This means there has been direct, blood-to-blood exposure. In a few instances, there has been other direct exposure to blood. In one case, a worker experienced a copious splash of blood to the eye. In another, a worker placed a compress on a bleeding patient for a long period of time, without using gloves. The worker's hands were roughly chapped, and the patient's blood was able to get into the worker's body.

There are no cases of health care workers, or anyone else, becoming infected with HIV under "casual contact" circumstances.

We hope all health care providers will follow infection control guidelines in any patient contact in the future. (The guidelines are outlined on p. 145.)

"About 3% of AIDS cases in the United States have 'no known risk factor.' Where did these several hundred people get AIDS, if not through the usual risk activities reported?"

Reporting on a disease diagnosed in 120,000 modern-day Americans is a true challenge. Those affected are dispersed over the entire country, and they are treated in a variety of medical settings. Accurate reporting in these circumstances is always difficult. Remember that 97% of AIDS cases have a known risk factor consistent with the information we have presented in this curriculum. The other 3% are entered into a category called "none of the above/other," which is not actually the same as "no known risk." Here is where most of those 3% fall:

1. Early on in the AIDS epidemic, Haitian immigrants were listed as a risk category. Since that time, this category has been removed from the official reports on AIDS published by the Centers for Disease Control. Many of the 3% of cases in the "Other" category are Haitians diagnosed with AIDS. There are three likely modes of transmission among this population: (1) heterosexual contact; (2) sharing of IV needles in the administration of medicines by folk healers; and (3) male homosexual contact unreported because of different cultural understandings about what constitutes homosexuality, or because of antihomosexual feelings in the culture.

2. Some people are diagnosed with AIDS and fail to return for follow-up questioning to determine risk factors. This is not uncommon among transient or highly mobile individuals, which includes many IV drug users and some gay men. These people are entered into the "other" category.

3. Some individuals are diagnosed with AIDS after death. Risk information is often unavailable in these cases.

4. Some people diagnosed with AIDS are too ill at the time of diagnosis to provide information about themselves. Others do not want to provide the information.

5. The major risk factors for AIDS in the U.S.—homosexual activity and IV drug use—are highly stigmatized. Many people are unable or unwilling to admit their risk activities because of this.

"I know a doctor who says he/she thinks AIDS might be casually transmitted."

AIDS research is a highly specialized field, and most physicians are not AIDS specialists. They have to interpret what they hear and read just as non-physicians do. In a 1986 survey by *MD* magazine, 34% of private practice physicians responding believed food handlers should be tested for AIDS antibodies, presumably because they were concerned about the possibility of casual transmission.

This does not mean that there is a preponderance of scientific opinion supporting the likelihood of casual transmission. It means physicians, like everyone else, need careful and thorough education about AIDS risks. If you surveyed HIV specialists who work with AIDS patients every day, you would find that they are quite confident that HIV is not casually transmitted. You would see them following standard infection control guidelines to protect themselves from needle sticks or prolonged unprotected exposure to blood. You would also see them touch their patients, talk with them, and sometimes laugh and cry with them. These caregivers know that as long as the standard guidelines for infection control are followed, there is no need for artificial barriers to human caring and understanding.

We understand that doubts about casual transmission will continue for some people. Given the serious nature of the disease, this is understandable. We think a look at the scientific evidence shows very persuasively that AIDS is not transmitted without the intimate exchange of blood, semen or vaginal secretions. In all cases reported thus far, there is *no* case that has been shown to be transmitted through saliva, sweat, tears or any casual contact. If you personally continue to question the transmission of AIDS, we encourage you to ask further questions of AIDS information resources (see p. 155).

The Issue of Abstinence

We have heard a lot more talk about sexual abstinence since AIDS was first identified. Many people believe that teaching about abstinence is the best course for preventing the sexual transmission of HIV among teenagers. There has been controversy about the issue, however, which we would like to address.

We couldn't agree more on the benefits of abstinence for teenagers. If more teens were abstinent, we would see fewer sexually transmitted diseases with their associated health problems (for example, pelvic inflammatory disease—PID—causes thousands of young women a year to become infertile). The rate of teenage pregnancy would also drop, and fewer young people would have to face the double burden of trying to complete their education while parenting a newborn or young child. And finally, we could expect the rate of HIV infection to stay low in this age group. These are wonderful benefits, so promoting abstinence certainly has its place in teen education.

The problem arises when people suggest that abstinence is the *only* acceptable teaching for HIV prevention. Adolescents are making their own decisions about sexual behavior, whether we want them to or not. American adolescents today are deciding in significant numbers not to be sexually abstinent. If we present abstinence as the only method of HIV prevention, we are offering nothing to the twelve million teenagers in this country who are sexually active. We are essentially saying to them, "Be abstinent or die."

If we want to promote abstinence among teenagers, we must devote time, energy and effort to the task. Teens are surrounded by overt and covert messages from peers, in young adult fiction, in movies, television and advertising, and in popular music that endorse and encourage sexual activity. There are few resources in popular culture that suggest abstinence is a positive or desirable choice. To help teens balance the picture, we can teach them skills related to values clarification, decision making and assertiveness. To help them resist these compelling persuasions to be sexually active, we must promote teen self-esteem. These lessons are well beyond the scope of HIV education alone. Careful planning of curricula in family life education and modern living skills, spanning the full course of a student's school career, can establish the foundation needed to develop such capabilities.

In providing teens a thorough and careful education about AIDS and HIV, we want to emphasize that abstinence is the only 100% effective method of preventing the sexual transmission of the AIDS virus. By also including a description of safer sex activities, we acknowledge that sexual activity does or might take place, now or in the future. We are not promoting teen sexual activity in these programs, however, and we can state this clearly to our students. What we are endorsing is care and thoughtfulness about decisions that affect oneself and one's friends or sexual partners. What we are supporting is health and longevity. What we hope to prevent is unnecessary suffering and death.

Teens (and adults) *deserve* full information about HIV prevention. If we offer them less, we lose credibility as educators and as role models. If, in our education efforts, we neglect to acknowledge teenagers as people who may be sexually active, we lose a valuable opportunity to stem the spread of this devastating illness. If we fail to encourage those who are, or may someday be, sexually active to consider their choices carefully and reevaluate past decisions, we condemn them to a risk they might not otherwise choose to take.

We cannot afford to make these errors. The lives of our youth, of the adults they will become, and the children they will bear are much too precious. In our education efforts, we can present abstinence as the best of several possible choices for teens, but we must be honest and forthright about the full spectrum of prevention options for a population already quite active sexually.

Trouble-Shooting for Teachers: What Can Go Wrong in Teaching About AIDS/HIV?

AIDS is an interesting topic, and one that is relevant to young adults. Most classes in our experience have responded in an enthusiastic and appropriate manner to our presentations. Occasional difficulties might arise, so we share our suggestions for these situations.

1. **Students do not respond to the materials.**

   Many causes may underlie a lack of participation (including the other points listed below). If poor participation is atypical of a class, we suggest asking directly what the hesitation is about, or addressing the issues below. If the class continues to be unresponsive, carefully review HIV transmission and prevention information in a lecture format, and use a worksheet or the test as an in-class tool.

2. **Students are anxious about the sexual aspects of the material.**

   Anxiety may manifest by withdrawal (silence) or acting out (disruption). Several issues about sexuality may arise.

   Many people, including teenagers, associate AIDS with homosexuality. Where there is significant underlying homophobia—fear of or discomfort with homosexuality—AIDS education can be difficult. Addressing students' feelings about homosexuality may be appropriate in this instance. It is *essential* to clarify AIDS/HIV is not solely a disease of gay men.

   Students may not be accustomed to discussing sex frankly with an older adult. They may be affected by new information about human sexual practices (especially oral and anal sex). Since adolescence is a time of social and sexual maturation, many students are only beginning to consider their feelings about sexuality. Their uncertainty about their own and their peers' attitudes may create further anxiety. If students are sexually active themselves, they may be concerned that this information will be revealed against their wishes (by other students in the class; by saying something unintentionally themselves; by some magical omniscience on the part of the teacher; etc.). If the students perceive that the teacher is uncomfortable with the material, they may try to "protect" the teacher by avoiding the lesson. In any of these instances, or others that might arise, talking about the situation directly and matter-of-factly usually helps lower anxiety.

3. **Students do not seem to understand the information.**

   Some of the units in this curriculum are sophisticated and difficult. Select materials carefully and gear the academic demands of the lesson to the capabilities of the class. Too simple a presentation may bore students; too complex a class will lose them.

4. **The teacher does not know the answers to some questions.**

   This is to be expected and is not really a problem. You might write down unanswered questions, get the answers from information resources (see p. 155) and report back to the class; or use Worksheet 4: "Finding Answers to Questions About AIDS/HIV" (p. 109).

5. **Parents disapprove of the materials.**

   We urge you to follow the guidelines of your school or district in seeking parental approval for teaching these materials. We believe the reasons for teaching youth about HIV are *very* persuasive (as outlined in "Why Teach Teenagers and Young Adults About AIDS?," p.1). But we acknowledge not all parents will agree.

   School districts and AIDS organizations can help with this problem by providing educational programs for parents.

Talking About Sexuality in Classrooms

Effective teaching about AIDS/HIV requires frank talk about sexuality. For teachers of subjects in which sex may not normally be a focus (science, social studies, etc.), this might raise some concerns. Though the usual techniques of good teaching do not change, a few guidelines can help in any class of young (or old) adults when talking about sexuality. We offer the following suggestions:

1. Personal boundaries need to be respected. No one should be asked to disclose opinions about sexuality if they do not wish to do so. Neither teacher nor students are expected to reveal personal experiences in these classes.

2. Each person has his or her own personal values about sexuality, and these will not be the same for everyone in the class. Differences are acknowledged and accepted. People are not put down for their values.

3. In discussions, it is necessary to clarify the difference between statements of fact ("It is true that...") and personal opinion ("I believe that..."). The teacher may occasionally need to assist students with such clarifications.

4. We recommend confidentiality rules be established for the class. This means personal opinions, values and experiences shared in the class are not discussed with others outside of the class. The teacher is also expected to maintain confidentiality, except in an instance where something illegal or dangerous (such as sexual abuse) is disclosed in class.

5. Anyone, including the teacher, may be embarrassed by questions or discussions about certain aspects of sexuality. This is normal, expected and acceptable.

6. Any question is reasonable. The teacher will not know all the answers. The teacher and class together can figure out how to find out about unanswered questions.

7. If any students have complaints about the topic, the method of teaching, or other aspects of the class, they are encouraged to discuss this directly with the teacher.

How to Teach About Condom Use

As more educators look to the task of providing AIDS /HIV education to teens, more may find themselves in a circumstance where instructions for using condoms are included in the lesson.

We recommend the following general guidelines for teaching about condom use:

1. Be familiar with how condoms are used.
2. Be familiar with different approaches to teaching condom use. In teaching, select an approach that will be comfortable for you and appropriate for your students.
3. Be familiar with established guidelines in your school or community for teaching this material. Select teaching approaches appropriately.

To help you follow these guidelines, we expand on the first two points below.

HOW CONDOMS ARE USED

General instructions for condom use can be given briefly and simply. We have included quite a bit of detail here to cover most questions which are likely to arise about condom use.

We recommend latex condoms for disease prevention—natural skin condoms are not as effective in preventing the transmission of the AIDS virus. Condoms are not *100%* effective in preventing HIV transmission. They do break or slip off on occasion. Most breakage or slippage, however, is due to "user error"—too much or too little lubrication is used, the condom is improperly placed, air bubbles are present when the condom is used, etc. When people are familiar with condoms and have practiced using them, breakage rates drop significantly. An intact latex condom is a sufficient barrier for HIV, so proper use of condoms can prevent transmission in most cases. Sexual abstinence is the only 100% effective method for preventing the sexual transmission of AIDS.

1. Use a condom every time you have intercourse, for all types of intercourse (oral, vaginal, anal). There is no "safe" period during which diseases are not transmitted.
2. Keep condoms conveniently stored in a cool, dry place. If they are easy to get to, they will be easy to use. Do not keep them in a wallet or near direct heat or sunlight for long—the latex may weaken and the condom may break during use.

3. Open the package carefully, and handle the condom gently. Jagged nails or rough handling can tear the condom.

4. Do not test condoms by inflating or stretching them. The latex has been pretested in a factory for its strength and ability to expand.

5. As soon as erection occurs, put the condom on. First, with thumb and forefinger, gently press any air out of the receptacle tip at the closed end (air bubbles can cause condoms to break). If the condom is plain-ended, leave about a half inch free at the tip to catch the ejaculation. A dab of lubricant inside the tip will increase sensation.

6. Use some lubrication on the outside of the condom and around the vagina or anus before entry. Use more as needed. ***Use only water based lubricants*** and read lubricant labels very carefully. Any lubricant containing fats, shortening or oils (such as Vaseline or cooking fats) will damage the latex and cause breakage.

   Lubricants or contraceptive jellies or foam containing the spermicide nonoxynol-9 are believed to offer additional protection against HIV infection. Lubricants and spermicides *without* a condom do not provide adequate protection from HIV transmission.

7. Hold the rim of the condom when necessary, including while withdrawing the penis, to keep the condom from slipping off. Withdraw gently.

8. Throw used condoms away! Never use more than once.

9. Using condoms may be difficult or embarrassing at first. This becomes easier, more natural and more relaxed when you are familiar with condom use.

WAYS TO TEACH ABOUT CONDOM USE

In any instruction about condom use, certain general approaches are suggested. Many educators of adolescents prefer to use the passive rather than the active voice in discussing condom use ("Condoms should be used every time a person has intercourse," rather than "Use condoms every time you have intercourse,") because it is less likely to be interpreted as an endorsement or encouragement of teen sexual activity. Be as explicit as you reasonably can given your setting and your own comfort with the material. Having condoms for students to touch and examine helps demystify the whole process of condom use. If this is not practical, having one to show the class is useful. Be sure to have referral sources listed for students as to where they can acquire condoms and lubricants, how much they cost, and where they can get further questions answered.

1. **Verbal Instruction**: You can describe condoms and how they are used. Students will need to know basic vocabulary and physiology, so they are familiar with terms like "erection," "base of penis," "ejaculation," and so forth.

2. **Written Instructions**: As an adjunct to lessons on condom use, you can hand out brochures showing how condoms are used. These are usually available from condom manufacturers or distributors, or from health clinics.

3. **Visual Instruction**: Describing how condoms are used, with visual aids to assist the introduction, offers the most effective approach to condom education. Be sure to practice any method before trying it out in front of a group of students, so you are quite familiar with how sturdy condoms are when properly handled. Most simply, one can unwrap a condom and unroll it over the index and middle finger of one hand, showing how much space to leave at the tip, how to hold the end of the condom, and how to unroll and remove the condom. Some teachers are able to combine humor with demonstration by bringing cucumbers or zucchini to class and showing how to apply and remove condoms.

   Manufacturer's written instructions, by the way, are often difficult to understand. In one study of 14 different sets of manufacturer's instructions, two required the reading skills of a college freshman, and six other sets required high school graduate skills. This level of reading ability is beyond the comprehension of many teenagers and adults. Talking about condoms with teenagers, and having samples to look at, may be the only way many teens will be able to learn how to use them correctly.

   Expect humor, laughter and embarrassment in condom lessons. This is healthy! It shows that the message is getting through. Allowing students to address their embarrassment in class makes it less essential that they hide their feelings in real-life circumstances where honesty and frankness about condoms is essential.

Instructions for Cleaning Needles

The *best* strategy for preventing transmission of HIV through needle use is not to use needles!

If you do use needles, the only sure way of avoiding HIV is never to share.

Cleaning needles with bleach will kill HIV in used needles. This is how it is done:

1. Pour liquid bleach into a glass.
   Fill the syringe with bleach.
   Empty bleach from syringe into a sink.
   Repeat.

2. Fill a glass with clean water.
   Fill the syringe with water.
   Empty water from the syringe into a sink.
   Repeat.

You must follow both steps. Make sure you don't shoot or drink the bleach. Throw away used bleach.

Staying Updated on AIDS/HIV Information

The changes in our knowledge about AIDS have been truly remarkable. In 1981, when the disease was first recognized and described, we did not even have a clue to its cause. Today we understand transmission, the causative virus has been identified, we know how to prevent the disease, a successful antibody test has been developed, and treatments (not cures) for HIV infection and some of its associated diseases are now available and will improve as time goes on.

Information about HIV will continue to change. This certainly brings up the question of how up-to-date the materials in this curriculum will be in a short time. Briefly, here are the likely changes we will see in HIV in the next few years:

1. **Epidemiology**: The number of cases will continue to increase. Gay and bisexual men will continue to be the major group affected, but the overall percentage of cases among gay men will drop. IV drug users will be diagnosed in increasing numbers, as will their sex partners. Sexual transmission among heterosexuals will also increase, though most experts do not expect the disease to infect the heterosexual population as widely as it has gay men.

2. **Transmission**: Our knowledge about the transmission of HIV will not change in any significant way. Exchange of blood, semen and vaginal secretions in sexual activities will be the primary mode of transmission, with sharing of needles in IV drug use a significant infection risk as well.

3. **Vaccine**: It is unlikely a successful vaccine will be developed soon, but work continues in this area. Once a vaccine is identified, several years of testing will be necessary before it is widely available.

4. **Treatment:** Some hopeful developments are finally being reported in treatment research. We now have evidence that AZT (Retrovir) helps prolong longevity and periods of health for people at certain stages of HIV infection. Further, there is good evidence that smaller doses of AZT are as effective as larger doses. Earlier problems with the toxicity of the drug are less troublesome with smaller doses.

   Other drugs which operate in a manner similar to AZT are being investigated in the hopes of finding one that is more effective and less toxic.

   Prophylactic (preventive) treatments are now available for some of the AIDS-associated diseases, and research in this area will continue.

While AIDS is still a very serious disease and a discouraging diagnosis, there is hope that one day people will be able to manage this disease and live, with successful treatments, for a longer period of time.

5. **Antibody testing**: We may see the appearance of an inexpensive test that detects the presence of the virus rather than the antibody. Such a test, if it is reliable, could improve the accuracy of screening and diagnostic efforts. Antibody testing might become obsolete in this circumstance.

The basic information about HIV infection—that it is a very serious disease that can be spread by sexual contact and the sharing of needles in IV drug use; that it is not casually transmitted; that it can be prevented; and that people need clear and accurate information about AIDS prevention—will not change.

Major changes in information about AIDS/HIV as well as updates on the number of cases reported are often reported in newspapers and news magazines. If you have a local AIDS organization, you can seek updates on information there. There is a list of resources on page 155 which can also provide you with current information about AIDS.

These guidelines reflect good basic hygiene. Most of the precautions are suggested primarily to protect the individual with HIV infection from exposure to disease, rather than to prevent transmission of the AIDS virus.

Infection Precautions for People with AIDS or HIV Infection Living in the Community

by
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People with HIV infection or AIDS who are able to care for themselves at home can safely live with both healthy individuals who do not have HIV or with other persons who do. Certain common sense hygienic measures protect both the person with HIV as well as his/her housemates.

1. Care should be taken not to share body secretions, particularly blood, semen or vaginal secretions, in sexual activities. This is important both to prevent possible transmission of HIV to others and also to prevent acquiring other infections which may not be well tolerated by the person with AIDS.

   There is no reason why persons with HIV should not continue to have the usual casual social contacts with people that they have had in the past.

2. Maintaining a state of personal cleanliness is helpful to both the person with HIV and others. This includes bathing regularly, washing hands after the use of bathroom facilities or contact with one's own body fluids such as semen, mucus, or blood, and washing hands before preparing food.

3. Kitchen and bathroom facilities may be shared with others. Normal sanitary practices in any household will prevent the growth of fungi and bacteria that may potentially cause illness to both immunocompromised and immunocompetent people. These include:

a. Clean kitchen counters with scouring powder to remove food particles. Sponges used to clean in the kitchen where food is prepared should NOT be the same sponges used to clean up bathroom-type spills. Dirty looking sponges should not be used to wash dishes or clean food preparation areas.

b. Clean inside of refrigerator with soap and water to control molds.

c. Mop kitchen floor at least once a week and clean up spills as they occur.

d. Mop bathroom floor at least weekly and clean up spills. Bleach, 1:10 strength (1 part to 9 parts water) can be used to disinfect floor and shower floor (athletes foot is caused by a fungus which bleach will kill). 1:10 bleach can also be used in the sink. A little full strength bleach can be poured into the toilet bowl for disinfection. Any spills of body fluids or waste (blood, urine, stool, vomitus, etc.) should be cleaned up first and then the surface disinfected with 1:10 bleach.

e. Sponges used to clean the floor or any body fluid spills SHOULD *NOT* BE USED TO WASH DISHES OR CLEAN FOOD PREPARATION AREAS. Mop water should NOT be poured down sink where food is prepared. Sponges used to clean up spills should not be washed out at sinks where food preparation occurs. Sponges and mops can be disinfected by soaking in 1:10 bleach for 5 minutes (longer may disintegrate sponge).

People with HIV who are able to handle their own body secretions and excretions are able to live at home without any special precautions. The guidelines listed above are considered good hygiene for any household.

4. Dishes may be shared with others provided they are washed in soapy water hot enough to require gloves. A disinfectant does not need to be used.

5. People with HIV can safely cook for others provided they wash their hands before beginning. It's also a good idea not to lick the fingers or taste from the mixing spoon while cooking. (Advice for everyone.)

6. Since unpasteurized milk and milk products have been associated with Salmonella infections in the past, these should not be included in the diet. Salmonella infections are not well tolerated by people with HIV.

7. If organically grown food is used (composted with human or animal feces), food should be cooked or peeled. "Organic" lettuce is not safe.

8. Towels and wash cloths should not be shared without laundering. Toothbrushes, razors, enema equipment and sexual toys should not be shared.

9. Trash disposal should be the same as for any household. Body wastes are flushed down the toilet. Other trash may be adequately handled by normal means (weekly trash pickups from cans lined with a plastic bag and a tight fitting lid to keep out

rodents). In the event of large amounts of sputum, wound drainage, etc. on kleenex or dressings, it is a good idea to collect them in a lined trash can in the house.

10. Pets — gloves should be used when cleaning bird cages (Psittacosis) and cat litter boxes (Toxoplasmosis). Tropical fish tanks may contain organisms in the Mycobacterium family which are not well tolerated by persons with HIV. Get someone else to clean your tank.

11. Keep living quarters well ventilated. Airborne diseases are less likely to be a problem when diluted by lots of air.

12. Persons with HIV can safely live together by observing the same common sense hygiene practices discussed above. The opportunistic infections acquired by persons with HIV are caused by organisms commonly found in the environment. The risk of becoming sick from one of these infections is based on the amount of immune system impairment, not of casual household contact.

How Health Care Workers Can Protect Themselves from Infection on the Job

The guidelines for health care workers listed below are recommended for all patient contact and will protect one from exposure to the AIDS virus as well as most other diseases.

1. Dispose of needles and syringes in puncture resistant containers without breaking or recapping the needle. Always dispose of needles immediately after use. Do not throw needles into regular trash.
2. Wear gloves for contact with blood or body substances.
3. Wear gloves or finger cot to cover a cut, abrasion, ulcer, rash or skin infection on your hands while working.
4. Wash your hands as soon as possible after contact with blood or body substances or after touching objects which have been in contact with blood or body substances.
5. Wear protective eye-wear when you are doing procedures which may result in splashes to the face (e.g., operative procedures, deliveries and endoscopies).
6. Wear a mask when the patient is coughing and the diagnosis of tuberculosis has not been excluded or when performing a procedure which may result in splashes of blood or body fluids to the face and mucous membranes. Wear a mask when specified for communicable diseases which require respiratory precautions.
7. Wear a gown when you expect spills of blood or body fluids onto your uniform or clothing or when contacting wounds or infected sites.

Infection Control Guidelines for Lab Classes Working with Body Fluids

- ✓ Review guidelines in the class before any work with body fluids is begun.
- ✓ Infection control guidelines will help prevent the transmission of many diseases, including hepatitis-B and HIV-infection (AIDS).
- ✓ Follow these guidelines at all times.

1. At the pre-college level, student work with human body fluids should be voluntary, with alternate lessons available for students who choose not to do such work.
2. Have students work only with their own body fluids (for blood typing or urinalysis, for example). Students with known blood-borne infections should not participate in such work.
3. Wear disposable latex gloves for all lab work involving human body fluids. Do not re-use gloves.
4. Use disposable needles and discard properly after use. Needles should not be recapped or broken. Dispose of needles in puncture-resistant containers. Do not discard needles into regular trash.
5. Some lab work may involve the use of knives or scalpels (for example, for animal dissection). Train students in the proper use of such tools so that accidents where the skin might be cut or broken are avoided. If any tool has cut human skin or had other possible human blood exposure, discard it or sterilize it in a 1:10 solution of bleach. Similarly discard or sterilize any other lab equipment exposed to human blood.
6. *Never* use mouth suction with pipettes.
7. Spills of human body fluids, in or out of lab classes, should be cleaned by someone wearing disposable latex gloves. Wash the area with a 1:10 solution of bleach. Paper towels or rags used in clean-up may be wrapped in plastic bags and disposed of in regular trash. Mops should be well-rinsed in 1:10 bleach solution after the spill is cleaned.

8. Wear goggles for any lab work which might involve splashes of blood on the face or eyes.

9. Wash hands well with soap and hot water before and after any lab work. Wash any skin which has had contact with body fluids immediately with soap and water.

10. The atmosphere in lab classes should be such that students feel free to ask questions about infection control guidelines; are comfortable reporting any accidents exposing instruments to human blood; and adhere willingly, confidently and consistently to the guidelines.

CDC Classification System for HIV Infections

(Adapted from *Morbidity and Mortality Weekly Report* 35 [May 23, 1986]: 334-339.)

The classification system presented in this report is primarily applicable to public health purposes, including disease reporting and surveillance, epidemiologic studies, prevention and control activities, and public health policy and planning.

This system classifies the manifestations of HIV infection into four mutually exclusive groups. The classification system applies only to patients diagnosed as having HIV infection. Classification in a particular group is not explicitly intended to have prognostic significance, nor to designate severity of illness. However, classification in the four principal groups is hierarchical in that persons classified in a particular group should not be reclassified into a preceding group if clinical findings resolve, since clinical improvement may not accurately reflect changes in the severity of the underlying disease.

Group I. Acute HIV Infection.
A mononucleosis-like syndrome, characterized by high fevers, lymphadenopathy and rash, with or without aseptic meningitis, associated with seroconversion for HIV antibody. This illness usually lasts 10-14 days and appears two to eight weeks after initial infection with HIV. Not all persons infected will experience this illness.

Group II. Asymptomatic HIV Infection.
Absence of signs or symptoms of HIV infection. This is the category for asymptomatic carriers.

Group III. Persistent Generalized Lymphadenopathy (PGL).
The presence of palpable lymph node enlargement at two or more extrainguinal sites, persisting for more than 3 months in the absence of concurrent illness or condition other than HIV infection to explain the findings.

Group IV. Other HIV Disease.
The clinical manifestations of patients in this group may be designated by assignment to one or more subgroups (A-E) listed below. Any of these subgroups may include patients who are minimally symptomatic as well as those who are severely ill.

> **Subgroup A. Constitutional disease.**
> One or more of the following: fever persisting more than 1 month, involuntary weight loss of greater than 10% of baseline, or diarrhea persisting more than 1 month; and the absence of a concurrent illness or condition other than HIV infection to explain the findings.

Subgroup B. Neurologic disease.
One or more of the following: dementia, myelopathy, or peripheral neuropathy; and the absence of a concurrent illness or condition other than HIV infection to explain the findings.

Subgroup C. Secondary infection disease.
The diagnosis of an infection disease associated with HIV infection and/or at least moderately indicative of a defect in cell-mediated immunity. Divided further into two categories:

> **Category C-1.**
> Symptomatic or invasive disease due to 1 of 12 specified secondary infectious diseases listed in the surveillance definition of AIDS (see p. 151 for the full CDC definition of AIDS).
>
> **Category C-2.**
> Symptomatic or invasive disease due to 1 of 6 other specified secondary infectious diseases: oral hairy leukoplakia, multidermatomal herpes zoster, recurrent Salmonella bacteremia, nocardiosis, tuberculosis, or oral candidiasis (thrush).

Subgroup D. Secondary cancers.
Diagnosis of one or more kinds of cancer known to be associated with HIV infection as listed in the surveillance definition of AIDS (see p. 151) and at least moderatively indicative of a defect in cell-mediated immunity.

Subgroup E. Other conditions in HIV infection.
Other clinical findings or diseases, not classifiable above, that may be attributed to HIV infection and/or may be indicative of a defect in cell-mediated immunity.

*Group IV, Subgroup C, Category C-2, describes most persons with AIDS-related complex (ARC). Remember that the presence of tuberculosis, thrush or herpes zoster (shingles) without other evidence of HIV infection is not diagnostic of ARC, and that there are many people who may develop these illnesses for other reasons.

CDC
Case Definition for Acquired Immune Deficiency Syndrome

At its simplest, AIDS can be defined as the presence of either *Pneumocystis carinii* pneumonia (PCP), Kaposi's sarcoma (KS) (in a person less than 60 years of age), or other opportunistic infection, without any known underlying cause of immune suppression other than HIV infection. Earlier on, the list of opportunistic infections associated with an AIDS diagnosis was fairly short, but as knowledge of the disease grew, so did the number of opportunistic infections considered diagnostic of AIDS.

Today's CDC case definition of AIDS is considerably more complex than the one first issued in 1981. This is true for two main reasons: first, we have greater knowledge about the manifestations of serious HIV infection; second, laboratory measures have been developed to indicate the presence of HIV infection. For the full text of the current case definition, see *Morbidity and Mortality Weekly Report 36 Supplement* (August 14, 1987): 3S-15S. This definition is summarized and generalized here for those interested in this more technical information.

A person is considered to have a diagnosis of AIDS if he or she (1) has no known underlying cause of cellular immunodeficiency other than HIV infection; and (2) one or more of the following diseases has been definitively diagnosed. These conditions meet diagnostic criteria even if laboratory tests verifying HIV infection have not been performed.

1. Candidiasis of the esophagus, trachea, bronchi, or lungs
2. Cryptococcosis, extrapulmonary
3. Cryptosporidiosis with diarrhea persisting more than 1 month
4. Cytomegalovirus disease of an organ other than liver, spleen, or lymph nodes in a patient more than 1 month of age
5. Herpes simplex virus infection causing a mucocutaneous ulcer that persists longer than 1 month; or bronchitis, pneumonitis, or esophagitis for any duration affecting a patient more than 1 month of age
6. Kaposi's sarcoma affecting a patient less than 60 years of age
7. Lymphoma of the brain (primary) affecting a patient less than 60 years of age.

8. Lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia (LIP/PLH complex) affecting a child less than 13 years of age
9. *Mycobacterium avium* complex or *M. kansasii* disease, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
10. *Pneumocystis carinii* pneumonia
11. Progressive multifocal leukoencephalopathy
12. Toxoplasmosis of the brain affecting a patient more than 1 month of age

If an individual does have laboratory evidence for HIV infection, even if he or she has other known cause of immune deficiency, a diagnosis of AIDS is met by (1) the definitive diagnosis of any of the diseases listed above; or (2) the definitive diagnosis of any of the diseases listed below.

1. Bacterial infections, multiple or recurrent (any combination of at least two within a 2-year period), of the following types affecting a child less than 13 years of age:

   Septicemia, pneumonia, meningitis, bone or joint infection, or abscess of an internal organ or body cavity (excluding otitis media or superficial skin or mucosal abscesses), caused by *Haemophilus, Streptococcus* (including pneumococcus), or other pyogenic bacteria
2. Coccidioidomycosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)
3. HIV encephalopathy (also called "HIV dementia," "AIDS dementia," or "subacute encephalitis due to HIV")
4. Histoplasmosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)
5. Isosporiasis with diarrhea persisting more than 1 month
6. Kaposi's sarcoma at any age
7. Lymphoma of the brain (primary) at any age
8. Other non-Hodgkin's lymphoma of B-cell or unknown immunologic phenotype and the following histologic types:
   a. Small noncleaved lymphoma (either Burkitt or non-Burkitt type)

b. Immunoblastic sarcoma (equivalent to any of the following, although not necessarily all in combination: immunoblastic lymphoma, large-cell lymphoma, diffuse histiocytic lymphoma, diffuse undifferentiated lymphoma, or high-grade lymphoma)

NOTE: Lymphomas are not included here if they are of T-cell immunologic phenotype or their histologic type is not described or is described as "lymphocytic," "lymphoblastic," "small cleaved," or "plasmacytoid lymphocytic."

9. Any mycobacterial disease caused by mycobacteria other than *M. tuberculosis*, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)

10. Disease caused by *M. tuberculosis*, extrapulmonary (involving at least one site outside the lungs, regardless of whether there is concurrent pulmonary involvement)

11. *Salmonella* (nontyphoid) septicemia, recurrent

12. HIV wasting syndrome (emaciation, "slim disease")

If a person has laboratory evidence of HIV infection, an AIDS diagnosis is also given if any of the following diseases are diagnosed presumptively. (In many of these illnesses, definitive diagnosis is available only by invasive procedures. Presumptive diagnosis may be made if the patient's condition precludes the possibility of such diagnostic efforts, or if the treating physician is quite familiar with the clinical manifestations and feels the procedures for definitive diagnosis are not necessary.)

1. Candidiasis of the esophagus

2. Cytomegalovirus retinitis with loss of vision

3. Kaposi's sarcoma

4. Lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia (LIP/PLH complex) affecting a child less than 13 years of age

5. Mycobacterial disease (acid-fast bacilli with species not identified by culture), disseminated (involving at least one site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)

6. *Pneumocystis carinii* pneumonia

7. Toxoplasmosis of the brain affecting a patient more than 1 month of age

AIDS Information Sources

The network of AIDS information and service resources is large. There are organizations or agencies responsible for coordinating AIDS services in every state. The national information number, listed below, maintains up-to-date listings of local resources throughout the country. Not all of these organizations have information hotlines.

Be sure to check any numbers or addresses before giving them to students—they have a tendency to change fairly often.

HOTLINES

National AIDS Hotline
(800) 342-AIDS

Spanish AIDS Hotline
(800) 344-7432

AIDS Hotline for Hearing Impaired
(800) 243-7889

STD National Hotline
(800) 227-8922

Contracted by the American Social Health Association
through the Centers for Disease Control (CDC)

WRITTEN RESOURCES: PAMPHLETS, BROCHURES, POSTERS

Call or write for description of materials and price list. Some of these agencies will also provide speakers for school assemblies, consultation for teachers or education for parents.

ALASKA

Alaska AIDS Assistance Association
(800) 478-2437

CALIFORNIA

Southern California AIDS Hotline
(800) 922-AIDS (Southern
California only)
(213) 876-AIDS

Spanish AIDS Hotline
(800) 222-SIDA

CALIFORNIA (cont'd)

Multi-Language AIDS Information and Referral
(800) 922-2438

TDD AIDS Hotline
(800) 553-AIDS

Network Publications
A Division of ETR Associates
P.O. Box 1830
Santa Cruz, CA 95061-1830
(408) 438-4080

San Francisco AIDS Foundation Hotline
P.O. Box 6182
San Francisco, CA 94103
(800) FOR-AIDS (English/Spanish)
(800) 255-3060 (Tagalog)
(415) 863-2437 (San Francisco only)

HAWAII

State AIDS & STD Hotline

Oahu:
(800) 922-1313

All other Islands:
(800) 321-1555

MARYLAND

Health Education and Resource
Organization (HERO)
101 W. Read St., Suite 825
Baltimore, MD 21201
(800) 638-6252 (Baltimore area only)
(301) 333-2437 (Hotline)
(800) 553-3140 (TTY)
(301) 685-1180

MASSACHUSETTS

AIDS Action Committee
131 Clarendon St.
Boston, MA 02116
AIDS Action Line:
(800) 235-2331 (U.S. toll-free)
(617) 437-6200 (main number)
(617) 536-7733

NEW YORK

Gay Men's Health Crisis, Inc.
129 W. 20th St.
New York, NY 10011
(212) 807-6655 (English/Spanish)
(212) 645-7470 (TDD)

Hispanic AIDS Forum Hotline
121 6th Ave., Room 505
New York, NY 10013
(212) 966-6662 (English/Spanish)

NORTH CAROLINA

American Social Health Association
P.O. Box 13827
Research Triangle Park, NC 27709
(919) 361-2742

WASHINGTON, DC

American Red Cross
HIV/AIDS Education Office
1709 New York Ave. NW
Suite 208
Washington, DC 20006
(202) 662-1577
or contact local Red Cross

National AIDS Network
2033 M St. NW
Suite 800
Washington, DC 20036
Phone: (202) 293-2437
FAX: (202) 293-2587

WASHINGTON, DC (cont'd)

U.S. Public Health Service
Office of Communication
News Division
Hubert H. Humphrey Building
Room 717H
200 Independence Ave. SW
Washington, DC 20201
(202) 245-6867

AIDS Information Clearinghouse:
(800) 458-5231

GLOSSARY

AIDS

Acquired Immune Deficiency Syndrome. A viral disease which damages the body's immune system, making the infected person susceptible to a wide range of serious diseases. May also involve neurologic symptoms.

antibody

Proteins produced in the blood in response to toxins or other foreign organisms. Antibodies in some cases can neutralize toxins and help eliminate infections, though in the case of AIDS, antibodies are not effective in combating the disease.

ARC

AIDS-related complex. A diagnosis given to people infected with the AIDS virus who have symptoms of illness related to this infection, but do not meet the diagnostic criteria necessary to be given a diagnosis of AIDS. This term is falling out of usage.

ARV

The name given the AIDS virus by Jay Levy of the University of California, San Francisco. Stands for AIDS-associated retrovirus.

asymptomatic HIV infection

The condition that occurs when a person has been infected with the AIDS virus (HIV), but shows no physical symptoms of immune suppression.

blood transfusion

To put blood into the veins of an individual. First, blood is withdrawn from a donor. It may be stored for some period of time. Then, to treat injury or illness, a recipient is given this donated blood.

casual contact

Normal day-to-day contact between people at home, school, work or in the community, which does not involve sexual interactions or the sharing of needles.

casual transmission

Transmission of disease through casual contact. Colds and flus are often casually transmitted. The AIDS virus is not transmitted casually.

CDC

The Centers for Disease Control, a federal agency based in Atlanta which studies and monitors the incidence and prevalence of disease in the U.S., and also provides health and safety guidelines for the prevention of disease.

condoms

Also called rubbers or prophylactics. A latex sheath used to cover the penis during intercourse to prevent pregnancy and the transmission of sexual diseases. Latex condoms are effective in preventing the transmission of the AIDS virus. "Natural skin" condoms are not as reliable for the prevention of disease and are not recommended. No condoms are 100% effective—they may break or slip off on occasion.

disease

A particular destructive process in an organ or organism with a specific cause and characteristic symptoms; an illness.

ELISA

A test used to detect HIV antibodies in blood samples. The most inexpensive and widely used test to date. Stands for enzyme-linked immunosorbent assay.

epidemiology

The study of the distribution and causes of diseases.

false negative

In an HIV antibody test, a result that reads negative when there is actually antibody in the blood. A type of erroneous result.

false positive

In an HIV antibody test, a result that reads positive when there is actually no antibody in the blood. A type of erroneous result.

hemophilia

A rare, inherited bleeding disorder of males in which normal blood clotting is not possible. Treated with Factor VIII, a product made of human blood which allows normal clotting to occur.

HIV

The accepted scientific name for the AIDS virus, in most common usage now. Stands for human immunodeficiency virus.

HIV disease

A term usually indicating the condition that occurs when a person has been infected with HIV and shows mild or severe symptoms of immune suppression. Considered by some but not all to include the asymptomatic stage of HIV infection as well.

HIV infection

The condition that occurs when an individual has been infected with the AIDS virus (HIV). A person with HIV infection may be without symptoms of immune suppression, may have mild or severe symptoms, or may have a diagnosis of AIDS.

HTLV-III

The name given the AIDS virus by Robert Gallo of the National Cancer Institute. Stands for human T-cell lymphotropic virus, type three.

IFA

A test used to detect HIV antibodies in blood samples. More difficult to perform and more expensive than the ELISA. Also believed to be more specific (can accurately identify samples without antibody) than the ELISA, so sometimes used to verify ELISA results. Stands for immunofluorescent assay.

immune system

The body's system of defense against disease, consisting of specialized cells and proteins in the blood and other body fluids.

incubation

In a medical context, the length of time between an individual's first being infected with a disease-causing organism and the development of symptoms or diagnosis. The incubation period for AIDS is often 8-10 years or more.

intercourse

A type of sexual contact involving one of the following: (1) insertion of a man's penis into a woman's vagina, called "vaginal intercourse"; (2) placement of the mouth on the genitals of another person, called "oral intercourse"; or (3) insertion of a man's penis into the anus of another person, called "anal intercourse."

intravenous

"Within veins"; injection by needles directly into the blood veins.

Kaposi's sarcoma

KS, a tumor of the blood and/or lymphatic vessel walls, sometimes seen in persons with AIDS. Usually appears as pink or purple blotches on the skin.

LAV

The name given the AIDS virus by Luc Montagnier of the Institute Pasteur, Paris. Stands for lymphadenopathy associated virus.

lubricant

In this context, a substance applied to condoms or sexual organs which makes contact between condom and skin slippery. Lubricated condoms are more comfortable, safe and exciting. Lubricants can be purchased in most places where condoms are sold. Use only *water based* lubricants with condoms, and read labels carefully—any fats or oils will break down the latex and may cause the condom to tear.

lymphadenopathy

The condition of lymph nodes being swollen. Often a sign of infection or illness. People infected with the AIDS virus often have chronic lymphadenopathy.

neurologic

Pertaining to the nervous system or brain. Persons infected with the AIDS virus often develop neurologic infection with symptoms such as forgetfulness, confusion, perceptual problems, lack of coordination or loss of muscle control.

nonoxynol-9

A spermicide which has also been shown to kill the AIDS virus in laboratory studies. Available in some sexual lubricants which can be used with condoms, nonoxynol-9 is *not* an effective AIDS prevention method used on its own.

opportunistic infection

An infection caused by organisms that are not able to affect people with healthy immune systems.

Pneumocystis carinii pneumonia

PCP, the most common life-threatening opportunistic illness diagnosed in AIDS. Caused by a protozoan parasite, it creates difficulty in breathing and is the most common cause of death for people with AIDS.

PWA

Person with AIDS. Many people with AIDS prefer this term to others like "AIDS victim," or "AIDS patient." They would rather see themselves as active participants in their treatment and healing, not helpless victims who passively wait to die. They are whole and complete persons, and the term "patient" reduces them to little more than a case of disease.

risk

The chance of injury, damage or loss; dangerous chance; hazard.

safer sex

Sexual activity which protects one from infection with the AIDS virus. In safer sex, no body fluids are shared.

secretion

A substance generated from blood or cells which may have cleansing, lubricating or other characteristics.

seropositive

In the case of AIDS, the condition of having HIV antibodies found in the blood.

spermicide

Any substance used to help prevent pregnancy because of its ability to kill sperm. One spermicide, non-oxynol 9, has also been shown to kill the AIDS virus in laboratory studies.

STD

Sexually transmitted disease, any of a number of diseases which can be transmitted through various forms of sexual contact. HIV is a disease which is transmitted through sexual intercourse.

surveillance

In public health terms, monitoring and collecting data on incidence of disease—essentially, counting the number of cases.

symptomatic HIV infection

The condition that occurs when an individual has been infected with the AIDS virus (HIV) and shows mild or severe symptoms of immune suppression.

T-cell

A specialized white blood cell which helps orchestrate the immune system's response to infection. The T-cell is invaded and disabled by HIV.

transmission

Passed along. In the context of disease, passed from one individual to another.

vaccine

A preparation introduced to the body to produce immunity to disease. Historically, most vaccines have been made of weakened, or killed disease organisms themselves. In the future, we may see vaccines which are genetically engineered non-lethal forms of such organisms.

virus

An organism formed of genes surrounded by a protein coating. Technically not living, since it cannot reproduce itself but must invade a living cell to reproduce. Smaller than any living organism.

Western blot

A test used to detect HIV antibodies in blood samples. More difficult to perform, and more expensive, than the ELISA. Also believed to be more specific (can accurately identify samples without antibody) than the ELISA, so sometimes used to verify ELISA results.

About the Authors

Marcia Quackenbush, MS, is coordinator of Training for the AIDS Health Project, a program of the University of California, San Francisco. She has worked in the field of AIDS prevention and education since 1984. She has assisted in several publications on health and sexuality, including *Period.* (1979, Volcano Press), a book about menstruation for premenstrual girls, which she coauthored and illustrated; and *The AIDS Challenge* (1988, Network Publications); and *"Does AIDS Hurt?" Educating Young Children About AIDS* (1988, Network Publications).

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About the Publisher

Network Publications is a division of ETR Associates, the leading national organization devoted to the development of educational materials and programs in family health, sexuality and sexual abuse prevention. *Teaching AIDS* is just one of more than 500 high quality, practical titles widely distributed by Network Publications to educators and health professionals.

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